

JPRS 74841

31 December 1979

Worldwide Report

ENVIRONMENTAL QUALITY

No. 234



FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

REPORT DOCUMENTATION PAGE		1. REPORT NO. JPRS 74841	2.	3. Recipient's Accession No.
4. Title and Subtitle WORLDWIDE REPORT: ENVIRONMENTAL QUALITY, No. 234			5. Report Date 31 December 1979	
7. Author(s)			6.	
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			8. Performing Organization Rept. No.	
12. Sponsoring Organization Name and Address As above			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
			13. Type of Report & Period Covered	
15. Supplementary Notes			14.	
16. Abstract (Limit: 200 words) This serial report contains worldwide press and radio coverage of environmental pollution and its effects; and pollution control technology, organizations, and programs.				
17. Document Analysis a. Descriptors Worldwide Pollution Environmental Control Meteorology Ecology				
b. Identifiers/Open Ended Terms				
c. COSATI Field/Group 4, 6, 18G, 18H				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161			19. Security Class (This Report) UNCLASSIFIED	
			20. Security Class (This Page) UNCLASSIFIED	
			21. No. of Pages 121	
			22. Price	

31 December 1979

WORLDWIDE REPORT
ENVIRONMENTAL QUALITY

No. 234

CONTENTS

PAGE

WORLDWIDE AFFAIRS

- Honecker Sends Greetings to Geneva Environment Congress
(ADN International Service, 13 Nov 79)..... 1

ASIA

INTER-ASIAN AFFAIRS

- Seoul Reports on Japan's Decline in Pollution
(Ikuko Anai; THE KOREA HERALD, 21 Nov 79)..... 2

AUSTRALIA

- Federal Intervention in Environmental Matters Supported
(THE SYDNEY MORNING HERALD, 19 Oct 79)..... 4

- Impact Statements on New South Wales Logging Planned
(Joseph Glascott; THE SYDNEY MORNING HERALD,
13, 17 Oct 79)..... 5

Government Spokesman Explains
Rainforest Report Submitted

INDIA

- Drought Said To Be 'Worst Ever'
(THE STATESMAN, 25 Nov 79)..... 7

Briefs

- Drought in Hooghly 10
Bihar Declared Famine Area 10

- a -

[III - WW - 139]

CONTENTS (Continued)	Page
INDONESIA	
Loggers Stip Land in South Kalimantan (KOMPAS, 25 Oct 79).....	11
PEOPLE'S REPUBLIC OF CHINA	
Importance of Environmental Protection Work (RENMIN RIBAO, 21 May 79).....	12
Transforming Beijing Into Sanitation Showcase Urged (Wang Suqi; RENMIN RIBAO, 21 May 79).....	16
Improvement in Sanitation Conditions Hailed (Zhang Li; JIEFANG RIBAO, 20 Jun 79).....	20
Unsanitary Food Processing Practices Scored (Fu Xudong; JIEFANG RIBAO, 18 Jun 79).....	22
Workers Complain About Plant Pollution (JIEFANG RIBAO, 20 Jun 79).....	23
Briefs Polluted Yalu River	26
SOUTH KOREA	
Drought Causes Scarce Water Supply in Rural Areas (THE KOREA TIMES, 17 Nov 79).....	27
Revitalization of Han River Urged (THE KOREA TIMES, 6 Nov 79).....	28
Harmful Heavy Metals Found in Umbilical Cords (THE KOREA TIMES, 23 Oct 79).....	29
EAST EUROPE	
INTERNATIONAL AFFAIRS	
Briefs CEMA Cooperation in Environmental Conservation	30

CONTENTS (Continued)

Page

BULGARIA

- Party Organ Editorial Voices Concern Over Soil Erosion,
Pollution
(Editorial; RABOTNICHESKO DELO, 18 Nov 79)..... 31

POLAND

- Automatic Environmental Monitoring System To Be Initiated
(Jan Stachurski; EXPRESS WIECZORNY, 15 Oct 79)..... 33

YUGOSLAVIA

- Air, Water Pollution Problems in Macedonia
(VJESNIK, 27 Oct 79)..... 35

LATIN AMERICA

CUBA

- Red Tide Effects Analyzed; Need for Research Stressed
(Luisa Lopez-Baluja; MAR Y PESCA, Aug 79)..... 37

- Briefs
Port Environment Course 46

HONDURAS

- Rain, Flooding Result in Heavy Losses
(ACAN, 16 Nov 79)..... 47

SUB-SAHARAN AFRICA

INTER-AFRICAN AFFAIRS

- Development of Indigenous Methods To Fight Pollution
Urged
(ZAMBIA DAILY MAIL, 27 Nov 79)..... 49

RHODESIA

- Program To Check Pesticide Dangers Reported
(THE SUNDAY MAIL, 2 Dec 79)..... 51

CONTENTS (Continued)	Page
Briefs	
Level of Dams	53
SOUTH AFRICA	
Briefs	
Pollution Control Official Resigns	54
Coastal Waters Pollution Test	54
ZAMBIA	
Briefs	
Drought Strikes Kasumbalesa	55
USSR	
Kirillin Speaks on Nuclear Power, Environmental Protection	
(TASS, 23 Nov 79).....	56
Economics and Environmental Protection	
(E. Bunatyan; KOMMUNIST, 19 Oct 79).....	57
State Control of Pesticide Pollution Discussed	
(D. Imedashvili; SIL'S'KI VISTI, 1 Nov 79).....	59
Joint Soviet-U.S. Aerosol Experiment	
(IZVESTIYA, 2 Oct 79).....	61
Pollution Control Measures Taken	
(L. Polonskiy; BAKINSKIY RABOCHIY, 19 Oct 79).....	64
Sewage Treatment Scheme Based on Purification Units	
(S. Tsikora; IZVESTIYA, 1 Nov 79).....	70
Ryazan Party Chief Comments on Water Protection Measures	
(N. S. Priyetzhev Interview; SOVETSKAYA ROSSIYA, 25 Sep 79).....	71
Treatment Facilities for a Recycled Water Supply System	
(B. M. Bubnov, et al.; PROMYSHLENNOYE STROITEL'-STVO, No 8, 1979).....	78
Natural Gas as Automotive Fuel	
(A. Bondarenko; KAZAKHSTANSKAYA PRAVDA, 28 Sep 79)...	82

CONTENTS (Continued)

Page

Reduction of Air Pollution by Motor Vehicles (V. Pavlovskaya; PROMYSHLENNOST' BELORUSSII, Aug 79).....	84
Editorial Chides Vinit'skiy Chemical Factory for Air Pollution (Editorial; PRAVDA UKRAINY, 29 Sep 79).....	87
Planning of Enterprise Layouts To Reduce Air Pollution (A. P. Mikhayluts; PROMYSHLENNOYE STROITEL'STVO, No 8, 1979).....	90
Boiler House Pollution Problems in Chita (M. Nekrasov; SOVETSKAYA ROSSIYA, 26 Oct 79).....	96
Recultivation of Land (M. Grishayev; EKONOMICHESKAYA GAZETA, Nov 79).....	98
Belorussian Official Comments on Environmental Protection Measures (Anatoliy Petrovich Shalushkov Interview; SOVETSKAYA BELORUSSIYA, 22 Aug 79).....	101
Briefs	
Kazakhstan Earthquake	104
Baltic Study	104
New Power Line	104
Cleaner Air in Amvrosiyeвка	104
Earthquake in Afghanistan	105
Kiev Clean Air Campaign	105

WEST EUROPE

FEDERAL REPUBLIC OF GERMANY

Federal Government, Laender Near Hazardous-Chemicals Law (FRANKFURTER ALLGEMEINE, 2 Nov 79).....	106
North-Rhine-Westphalia To Spend More on Ruhr Environment (FRANKFURTER ALLGEMEINE, 2 Nov 79).....	108

CONTENTS (Continued)

Page

Bavarian Environment Agency Concerned Over River Radioactivity (FRANKFURTER ALLGEMEINE, 20 Nov 79).....	110
---	-----

GREECE

Smog Over Athens and Salonica Reported (TA NEA, 28 Sep 79).....	112
--	-----

WORLDWIDE AFFAIRS

HONECKER SENDS GREETINGS TO GENEVA ENVIRONMENT CONGRESS

LD132206 East Berlin ADN International Service in German 1838 GMT 13 Nov 79 LD

[Excerpts] Geneva--On behalf of the GDR, Dr Hans Reichelt, deputy chairman of the Council of Ministers, minister for environmental protection and water conservancy, signed a convention on Tuesday in Geneva, along with government representatives of other states, on far-reaching, cross-border air pollution. This convention had earlier been approved, together with other documents, by the All-European Environmental Congress which opened the same day.

The congress has received a message of greetings from Erich Honecker, general secretary of the SED Central Committee and chairman of the GDR State Council, which states: "The GDR supports the development of international cooperation in order to solve the pressing problem of environmental protection as well as all efforts to protect the human environment and to make national use of natural resources. The All-European Environmental Congress is a further important step toward implementing the recommendations of the Final Act of the Conference on Security and Cooperation in Europe. It is an order of our time to solve jointly global problems which affect the life of every people, the whole system of international relations.

"As life convincingly proves, mutual cooperation can only flourish in peace. That is why the GDR resolutely advocates international detente, real measures to end the arms race and for disarmament. The latest peace initiative by the USSR is a convincing expression of a genuine will for peace. The peoples expect these important and far-reaching disarmament and peace proposals to be answered in a positive manner. Effective disarmament could simultaneously free considerable means for overcoming urgent problems of environmental protection."

CSO: 5000

SEOUL REPORTS ON JAPAN'S DECLINE IN POLLUTION

Seoul THE KOREA HERALD in English 21 Nov 79 p 5

[Article by Ikuo Anai]

[Text]

TOKYO (Reuters) — The latest government report on the environment says air in Japan's industrial centers is steadily becoming cleaner and clearer.

The report has helped to boost a campaign by industrial organizations for less compensation to victims of air pollution suffering from asthma and other bronchial diseases.

But various associations of pollution victims are not relenting in their demands for really clean air and are increasing pressure on the environment agency established eight years ago.

The 1979 white paper on the environment compiled by the agency says the level of sulphur dioxide in air has declined sharply to 0.018 parts per million (ppm) from the peak national average reading of 0.059 in 1967.

If the sulphur dioxide density exceeds 0.05 ppm in a certain region, it will be officially designated a polluted area under a 1974 Cabinet order for compensation for air pollution victims.

Such areas now total 41, including 19 of Tokyo's 23 wards, compared with 12 when the order was implemented.

An agency spokesman said the reason the number of areas had increased was because the latest level of air pollution was never taken into account.

Pollution Victim

Instead, data dating back to the late 1960s are used on grounds that air pollution victims, who first suffered more than a decade ago, still need cure even though the sulphur dioxide level has declined.

"As far as sulphur dioxide is concerned, 93 per cent of the country is already below regulations and in fact some of the polluted areas are included in this category," he added.

The number of people officially designated air pollution victims has risen from 15,000 to 71,000, including 23,000 in Tokyo and 20,000 in the western city of Osaka, the country's second largest business and industrial center.

All these patients are suffering from one of or a combination of four diseases. They are chronic bronchitis, bronchial asthma, asthmatic bronchitis and vesicular emphysema, according to the environment agency.

Under four categories of damage, a special degree patient—a person who cannot work and needs the aid of other people—is being paid 80 per cent of the national average salary of his age group.

The highest paid patient is a man in the 45-50 age group. He receives \$735 a month, plus \$121 for a assistant. A woman patient in this group is being paid half of this amount.

Total compensation for victims has increased twenty-fold to about \$277 million in 1978 from \$13 million in 1974.

Payments include damages to children, lump sums and 10-year pensions for bereaved families and funeral service fees.

Exhaust Gas

Eighty per cent of these funds are being collected from large factories which discharge more than 10,000 cubic meters of exhaust gas per hour. In pollution-designated areas, the amount is set at half of that figure.

The remaining 20 per cent comes from vehicle tax revenue.

The powerful Federation of Economic Organizations Keidanren has appealed to the ruling Liberal Democratic Party that areas where air pollution has decreased should be exempted from the 1974 Cabinet order.

The Keidanren has also demanded that standards of designating new patients be tightened and that funds be contributed by the state and small factories which also discharge industrial exhaust gases.

In October, representatives of patients associations held a national conference in Nagoya, central Japan, and resolved that the environment agency must not meet the Keidanren's demands.

The meeting also called for an expansion of the designa-

tion or areas to be covered by the order by using reading of nitrogen dioxide pollution, which also causes respiratory troubles.

The agency angered pollution victims, environmentalists and some opposition parties in July last year when it revised its own target of 1973 for lowering levels of nitrogen dioxide in air.

Industry Complaints

The then world's harshest standard of 0.02 ppm was relaxed up to 0.06 because of complaints from industry that the target was technically and financially impossible to attain.

Until the revision, 80 per cent of Japan was "polluted" with nitrogen dioxide. But the relaxation made 85 per cent of the country "unpolluted."

Tokyo's average hourly reading of nitrogen dioxide is still higher than the new maximum target. Six other areas also exceed the standard.

Japanese vehicles have been gradually reducing the amount of exhaust gases, including carbon monoxide, nitric oxide and hydrocarbon following the imposition of strict regulations.

The state government and local authorities have been spending billions of dollars to combat environmental pollution.

The central government earmarked \$4,700 million in this year's budget for anti-pollution activities, while the local governments spent \$7,900 million two years.

To prevent industrial pollution, the private sector used an estimated \$1,700 million, or 6.1 per cent of its total facility investment, in 1978, according to a government survey.

Japanese industry spent a total of \$3,800 million, or 17.1 per cent of its overall investment, in 1975.

FEDERAL INTERVENTION IN ENVIRONMENTAL MATTERS SUPPORTED

Sydney THE SYDNEY MORNING HERALD in English 19 Oct 79 p 12

[Text]

The Commonwealth needs to maintain powers that would enable it to intervene in environmental matters of national concern, the House Standing Committee on Environment and Conservation has found.

Even if States' legislation was similar to Commonwealth laws, independent Commonwealth assessment would be needed in some instances.

The committee's report was tabled yesterday. It will be considered by the Government in its review of the Environment Protection (Impact of Proposals) Act.

The committee chairman, Mr J. C. Hodges (Lib, Qld) said: "Some industry organisations, and particularly the mining industry, believe that even with arrangements between the Commonwealth and the States, co-operation has not eventuated and expensive and time-con-

suming duplication is taking place."

The committee recommends that the appropriate Federal minister should publicly give reasons for not directing an environmental impact statement.

Allowance for round-table discussions between interested parties was sought.

The Australian Heritage Commission Act, which is responsible for a compilation of a register of the national estate, was also examined by the committee.

Mr Hodges said the major criticisms of this legislation came from the mining industry. It was concerned about delays incurred in the hearing of objections to listings.

Mr Hodges said the industry was also critical of the practice of listing large tracts of land to protect the specific location of sacred Aboriginal sites. A confidential register was recommended to preserve secrecy.

AUSTRALIA

IMPACT STATEMENTS ON NEW SOUTH WALES LOGGING PLANNED

Government Spokesman Explains

Sydney THE SYDNEY MORNING HERALD in English 13 Oct 79 p 3

[Report by Joseph Glascott, Environment Writer]

[Text] The Forestry Commission is to prepare a series of environmental impact statements on proposed logging operations in NSW, the Minister for Conservation and Water Resources, Mr Gordon, announced yesterday.

Government sources said the decision was a move to avoid confrontations such as the State Government had with conservationists at Terania Creek near Lismore.

"This decision, it is hoped, will clear the air and help overcome the tarnished image of the Forestry Commission," a Government spokesman said.

"It will virtually leave it to the people to decide whether logging should proceed in controversial areas."

The decision is seen as a Cabinet victory for the Premier, Mr Wran, and the Minister for Planning and Environment, Mr Landa, over the forestry lobby in the Cabinet.

In explaining the decision to suspend logging at Terania Creek three weeks ago, Mr Wran admitted that the Government had made a mistake by not preparing an environmental impact statement.

The Government was "now correcting the mistake."

Mr Gordon said yesterday the Forestry Commission environmental reports would be

prepared in close consultation with the State Pollution Control Commission. (The SPCC normally conducts environmental inquiries).

He expected the first report would be on a proposed logging operation in Washpool State Forest, near Grafton.

Other reports would cover proposed logging operations in rain forests.

The environmental impact statements would be put on public exhibition. Comments from all interested parties would be evaluated under procedures laid down by the Government.

Mr Gordon said the Forestry Commission and the SPCC would prepare an impact statement on a proposed logging operation in the Black Scrub area near Bellingen.

The area had been the subject of controversy before an impact statement already had been submitted.

Conservationists said yes-

terday special attention was being given to the Black Scrub project because of the development of a protest movement similar to that at

The deputy-director of the Total Environment Centre, Mr Jeff Angel, said yesterday environmentalists congratulated the Government for upholding its environmental impact policy and for "recognising that forestry issues in NSW are highly controversial and deserve in-depth study and public scrutiny."

An overall inquiry into the rain forests was still needed to determine how remaining areas should be preserved and to examine employment problems.

Mr Angel said conservationists still wanted a ban on all rain forest logging in NSW.

Conservationists and sawmillers were in dispute over about 30 forest areas.

The environmental adviser to the Associated Country Sawmillers of NSW, Mr Ian Nicholas, expressed concern about the Government's decision.

"It confirms our worst fears that environmental impact statements are to be undertaken on every forest area, resulting in delays and disruption to the orderly supply of timber to the people of NSW," he said.

"The statements will cost between \$10,000 and \$30,000 each and the cost must be paid for by somebody."

His association found it incredible that a second study was being ordered for the Black Scrub in the Bellinger River State Forest. "This reinforces the fear that an environmental report will only be accepted if it concurs with the demands of radical preservationists," he said.

A rain forest policy statement sought by Cabinet when it suspended the Terania Creek logging will be presented to Cabinet's development and co-ordination committee on Tuesday.

Rainforest Report Submitted

Sydney THE SYDNEY MORNING HERALD in English 17 Oct 79 p 10

[Report from Joseph Glascott, Environment Writer]

[Text] A rainforest report prepared by the NSW Forestry Commission gives the State Government four options.

The two extreme-action options are to log all commercial timber from the rainforests or to abandon logging in rainforests altogether. Sawmillers would support the first, and conservation groups have called on the State Government to implement the second.

The Government is expected to evolve a compromise between the other options.

These are to log the rainforests under the commission's present policy of phasing out rainforest logging to a sustained-yield basis over some years, or to hasten that process by requiring sustained-yield logging immediately. (Sustained yield means taking no more timber than the amount which will regrow over a given period.)

State Cabinet asked for the rainforest report when it suspended logging in the Terania Creek forest three weeks ago.

The report was submitted yesterday to Cabinet's develop-

ment co-ordinating committee, which will make recommendations to Cabinet.

Government authorities said the report ruled out the logging of all rainforests for commercial timber on the ground that this was unacceptable to the public.

It presented the Government with a dilemma by pointing out that other options for a quick phasing-down of rainforest logging or its immediate banning would cause great economic hardship in country areas.

The report presented the commission's present policy as the most acceptable.

The commission's rainforest policy declared in October, 1976, says: "The broad objective to all rainforest areas is to reduce harvesting to selective fellings for speciality logs, at a level low enough to maintain canopy and rainforest structure. This would require the phasing-out of general-purpose timber harvesting in most rainforest areas."

The policy provides for a continuation of logging in certain rainforest areas to meet "market commitments." This qualification is where the Government will have most trouble in determining a policy.

The commission's report says hastening the phasing-down of rainforest logging would mean the immediate closure of timber mills at Wauchope and Armidale and would shorten the life of the Grafton mill.

Conservationists will call on the Government to find alternative sources of timber supplies to overcome this problem.

While the commission says it has reduced the annual allocation of rainforest timbers to the sawmilling industry by 50 per cent in the past 30 years, the Government will be under pressure to reduce this even more.

DROUGHT SAID TO BE 'WORST EVER'

Calcutta THE STATESMAN in English 25 Nov 79 pp 1, 7

[Text] New Delhi, Nov. 24.--The worst recorded drought in the past 100 years was in 1886 and the worst in living memory was the one in 1965-66 which came to be known as the "Bihar drought". This year's is even more severe in its consequences than the two, according to a Krishi Bhavan official. "There is no doubt that this one is without precedent."

Madhya Pradesh, Uttar Pradesh and Rajasthan all of which have less than a fifth of their cultivated land under irrigation and Bihar, Haryana, Punjab, Himachal Pradesh, and Jammu and Kashmir are among those most affected by the drought. The rainfall was less than the average by 39%. In some areas, it was 60%. Parts of Rajasthan like Alwar and Bharatpur are said to have never experienced such a severe drought.

Not only was the southwest monsoon delayed by a fortnight, but also there was a dry spell lasting four to eight weeks in several areas. When the monsoon arrived, it was erratic. "Some areas received an excess of rain, some not at all." And the monsoon receded in the middle of August. The maximum period of rainfall was four to six weeks. The cultivation of paddy was affected in eastern Uttar Pradesh and the Chhattisgarh region of Madhya Pradesh.

Kharif paddy is the only crop in Madhya Pradesh. It is grown on 50,00,000 [as published] hectares, 80% of the land being unirrigated. The drought made cultivation impossible in the unirrigated area. The crop was also affected on 25,00,000 hectares in eastern U.P. In U.P. as a whole, kharif crop on 40,00,000 hectares failed. Coarse cereals, like jowar and bajra, were also affected. Punjab was hit in a different way. But for the drought its kharif production this year would have been 15% more than in the previous season.

Rabi in most of these areas has been threatened. There was no moisture to enable sowing. The Ganga and the Jamuna are flowing much below their normal levels and the canals coming out of the rivers are having reduced discharge, with the result that farmers in even the canal-irrigated areas are unable to sow as much as they used to.

The power and fuel shortage has aggravated the situation. More than 80% of electricity in U.P., Punjab and Haryana is hydel-generated. With little or no water in the reservoirs, hydel power generation was affected. Because of this pumps used for agricultural work could not be operated. Bihar and U.P. depend mainly on diesel pumps.

The fuel shortage has impeded the movement of foodgrain to drought-hit people. The Railways which are facing a shortage of coal cannot transport food to the areas concerned.

The situation can still be improved, Krishi Bhavan officials say, if there is sufficient rainfall in the coming months. It will help avert the loss in rabi wheat.

The situation is better than last year in Gujarat and Maharashtra, and in the southern States. According to an official, it is strange that Gujarat, Maharashtra and Karnataka, which are highly drought-prone, are not hit this year.

Officials say that the drought is being fought effectively. "We have a buffer stock of some 21 million tons, we have more irrigated land than before, and our technology is advanced."

According to them, there is no reason to fear that the buffer stock of grain--which in June-July stood at 21 million tons--may get depleted. They say against last year's production of 131 million tons, the country's consumption was between 120 and 124 million tons leaving a surplus of 7 to 10 million tons. If this year's production goes down by 7 to 10 million tons, the buffer stock will still remain intact. The officials say that the kharif production will decline by 10 to 18 tons, and that intensive rabi cultivation may even reduce that to 7 million tonnes.

But if this year's shortfall is higher than 10 million tons, it will reduce the buffer stock. And if there is a bad harvest next year the situation will be frightening.

Administrators feel that a crash programme of minor irrigation works financed out of budgetary resources can alone help to maintain the country's self-sufficiency in food. One official says: "We should see that the water that now runs unused into the sea--even in a drought year--does not go waste. We should construct a number of small tanks, ponds and reservoirs, so that we are even better prepared next year. This year we have seen that wherever there were small ponds, the farmers were able to save one crop, if not two."

Officials in Yojana Bhavan say the grain is still being brought to the market and the Food Corporation is purchasing it. "By and large, the States which have been contributing to the national grain kitty will continue to do so, perhaps with the exception of Andhra Pradesh. At present the drought-affected States are contributing to the kitty marginally." There is no cause for panic, they add.

Till now there have been no efforts to "politicize" the drought. "Its impact on the people in the affected areas is too grim, too tragic, for anyone to seek to extract political gain out of it," the Janata president, Mr Chandra Shekhar said. Never before was seen the present migration of men in search of drinking water, especially in Rajasthan. The fodder shortage in the drought-hit States is "unprecedented."

There has, however, been what the officials describe as "the usual exaggeration" of expenditure on relief works by the affected States, but that is only with a view to getting maximum Central assistance. There appears to be no politics in that, nor any effort at confrontation with the Centre.

CSO: 5000

BRIEFS

DROUGHT IN HOOGHLY--Chinsurah, Nov. 19.--The entire Hooghly district is in the grip of acute drought. A memorandum submitted to the Chief Minister by Mr Shibaprasad Mukherjee, chairman, Hooghly Zilla Parishad, stated that over 700,000 peasants and agriculture day labourers were without work. Kharif crops on 231,500 acres of land had been affected by drought, out of the 396,850 acres transplanted this year. Khanakul, Coghat and Pursurah were the worst affected blocks in the district. Mr Mukherjee urged the Government to begin the "Food-for-work" programme, and to supply 225 pumps and 25 riverlift irrigation sets for the drought-affected areas. [Text] [Calcutta THE STATESMAN in English 20 Nov 79 p 3]

BIHAR DECLARED FAMINE AREA--Patna, Nov 23.--The Bihar Cabinet has declared as famine areas 296 out of 587 blocks in the State where kharif and maize crops have withered away due to drought. The decision was taken after an official survey of the drought-affected blocks. The Government has ordered immediate suspension of loan and rent collections, distribution of gratuitous relief and feeding of the indigent population. The Cabinet has also declared as scarcity area blocks where 30 to 50 percent of the crops have withered away. [Text] [Madras THE HINDU in English 24 Nov 79 p 6]

CSO: 5000

LOGGERS STIP LAND IN SOUTH KALIMANTAN

Jakarta KOMPAS in Indonesian 25 Oct 79 p 1

[Text] A bird's eye view of South Kalimantan over a stretch between Banjarmasin and Kotabaru presents a face of the land which deserves serious concern. A region which was still full of dense forests 5 years ago has become barren today. The land is bare and the erstwhile luxuriant tropical forests are no more.

Within a matter of 5 years the land has changed its form from a refreshing green color into a barren plain. Although stipulations exist saying that only trees with a diameter of 50 centimeters or over can be felled, younger trees also fall victim to the indiscriminate use of logging machinery. A tree or two left unharmed eventually dies too, so that the said region gradually turned parchy.

At present, companies holding forest exploitation rights are to be found in the southeastern part of South Kalimantan, hailing from Korea, the Philippines or combined Singapore ventures. Their concessions last between 20 and 25 years on the average.

In fact, holders of the forest exploitation rights are obliged to reforest the areas where the trees have been felled. In practice, however, nothing has been done. They do build nurseries, but the seedlings are not transferred to and planted in the timber areas.

The authorities are fully aware of what the loggers are up to. Due to lenient sanctions, however, the reforestation obligation which should be shouldered by the loggers is not being fulfilled as expected.

As a consequence of the absence of reforestation, the land which originally was covered with jungle has changed form within a very short period.

9300

CSO: 5000

IMPORTANCE OF ENVIRONMENTAL PROTECTION WORK

Beijing RENMIN RIBAO in Chinese 21 May 79 p 1

[Article by the Daily Commentator: "Do Environmental Protection Work Well; Promote Construction of the Four Modernizations"]

[Text] As early as 1973, Premier Zhou proposed that we must build our capital into a clean city, and Chairman Hua also emphasized that the environmental protection work of Beijing Municipality must lead the nation in similar works. In recent years, the vast majority of the cadres and the masses from every front in the city have firmly upheld the guideline--"overall planning, rational arrangement, overall utilization, turning harm into benefit, depending on the masses, everybody lending a hand, protect the environment, and bring happiness to the people"--and have accomplished a large amount of work related to environmental protection. As a result, definite results have been achieved, experiences have been accumulated, and a preliminary foundation of the work related to environmental protection has been established. However, the problems have not been completely solved, thanks to the interference and destruction wrought by Lin Biao and the "gang of four." There are still many units even today which have failed to grasp the importance of this work, and there are many places where the problem of pollution is still very critical. The pollutants are increasing in number and volume with the growing construction and are threatening the people's health and affecting the construction of the modernizations. The masses have a strong opinion about this, and our foreign friends too have had discussions about this matter. This situation is unbecoming of the capital of our socialist motherland. It is far from satisfactory, compared with what the party Central Committee and the people demand. The seriousness of the matter lies in the fact that there are still many comrades who do not attach importance to environmental protection. They may talk about its importance, but in action they are not part of the team. They have separated environmental protection work from construction of the Four Modernizations. They consider that while we are hastening after modernization today we cannot take care of environmental protection. This kind of understanding is one-sided and wrong.

We must understand that carrying out the work related to environmental protection systematically with self-confidence is an important, integral part

of socialist modernization and one of the important indices distinguishing it from capitalist modernization. Environmental pollution is caused mainly by the "three industrial wastes." The Western capitalist nations, during their Industrial Revolution, paid attention only to increasing production and profit, as dictated by the nature of their society, and neither planned nor made any effort to prevent pollution by the "three wastes." As a result, the day that modernization was realized was also the day that environmental pollution played havoc. Only when environmental pollution had brought a great loss to agriculture and industry and to capitalist production, and its own very existence was threatened by it, was environmental protection work included in the agenda and work was begun on treatment of pollution problems. Improvements began to take effect only in the 70s. We must absorb the lessons learned by the capitalist nations. The unique objective of socialist modernization is to bring happiness to the people; everything is based on the benefit to the people. We carry out environmental protection work not to limit the development of production but to achieve amidst our production activities more rational ways of using natural resources and transforming nature.

If we strive for production on the one hand and discharge the "three wastes" which can harm people on the other, are we not acting against the fundamental objective of developing production? Therefore, doing environmental protection work well is a serious part of proving the superiority of the socialist system. A socialist modernized industry must begin with industrial planning, treating the pollutions that may be caused by the "three wastes" as production is expanded. We must never allow the "three wastes" to endanger our people. Socialist modernized agriculture is necessarily mechanized, together with high yield and low residual toxicity. We must never strive to increase production only by producing a large quantity of food containing a high concentration of poisonous residue. Socialist modernized science and technology must include environmental protection as an integral part. We must never be helpless before pollutions caused by the "three wastes," passing the damages on to generations to come. The socialist economic plan must include environmental protection. Necessary arrangements must be made in such areas as capital, material, and equipment. We must never talk about importance without proving what we mean by action. In summary, the day we realize our Four Modernizations is the day this great socialist motherland of ours will be enjoying highly developed production, rich material resources, greatly improved people's lives, and a beautiful and clean environment. We must never allow it to become a country in which environmental pollution is rampant and the people suffer from diseases and a diminishing lifespan. Our constitution has clearly stated that we must "protect the environment and the natural resources, and prevent pollution and other public hazards." Therefore, during the process of striving to achieve the Four Modernizations, we must also carry out environmental protection work well. We must never neglect it.

We must also recognize that environmental protection work well done can promote the construction of modernization, while environmental protection

work poorly done can hinder it. To develop production, we need a mass of healthy working people who are able to grasp modern technology as a main production force. The industrial "three wastes" and other public hazards can directly or indirectly endanger the health of the working people: diseases in milder cases and deaths in more severe cases. According to an analysis made by a concerned department abroad, from 65 to 90 percent of all cancer cases in our society today are related to environmental pollution. According to an investigation carried out in the Beijing area, the proportion of cancer cases, respiratory system disorders, and heart disease is significantly higher in a seriously polluted area than in a relatively clean one. Noise and vibration have been found not only to cause high blood pressure and loss of hearing but also to cause mental retardation in children, and so on. Will these not hinder the development of production? Some comrades are concerned only about the money and time that must be spent on the treatment of the "three wastes," and are unable to see how much production can be increased, with consequent savings, if environmental protection work is done well. One of the important guidelines concerning doing environmental protection work well is overall utilization of the resources and turning harm into benefit. All matters and events consist of a unity of the opposites, which can transform into one another under favorable circumstances. The so-called industrial "three wastes" are nothing but unutilized resources. Discarded, they bring havoc; utilized, they bring treasure. If we recover from wastewater and waste gas the substances which otherwise would pollute the environment, these substances become something useful. There is a mechanical-chemical plant in Beijing which produces a waste liquid containing crotonaldehyde during the course of its production. This substance will pollute water sources if discharged. This plant is able to recover a number of chemical raw materials such as ethylene acetate and acetaldehyde from the waste liquid by means of distillation. The value of the recovered substances reaches more than 500,000 yuan each year. The wastewater of Shougang used to pollute the sewer of the western suburbs, destroying the crops and affecting the health of the masses. After preliminary treatment of the wastewater, the refined phenol recovered from the wastewater each year is valued at 700,000 yuan. The plant has further utilized the heat generated in the process of quenching the furnace slags for the purpose of space heating, replacing the tasks of more than 60 furnaces and saving more than 200,000 tons of coal every heating season. Examples such as these, in which waste is turned into treasure and harm is turned into benefit, are too numerous to count. The value of various resources produced from utilization of the "three wastes" over the entire city since 1972 alone has already reached more than 400 million yuan. If discharged arbitrarily, it constitutes not only a waste of potentially useful resources but also brings harm to industrial and agricultural production. Will it not hinder the progress of modernization?

Many facts serve as proof that production cannot grow continuously unless work related to environmental protection is done well. Some of the plants allowed their "three wastes" pollution to reach such a critical state that

that they were forced to stop production in order to treat their pollution problems. There are other plants which endangered the environment and the inhabitants so much that they were obliged to move out of a densely populated area so that the problem could be solved. The money spent on relocation far exceeded what it would have cost them if they had installed anti-pollution devices from the very beginning. Therefore, unless environmental protection work is done well, development of production cannot be speeded up. It is bound to result in a slowdown of modernization construction. Every unit must therefore include environmental protection work in its agenda and give it the proper place it deserves. The leaders at every level must attach importance to this work, make an overall plan, and execute the policy. They must mobilize the masses and let everybody lend a hand to pollution abatement. The administrative department of every industry and its department in charge of planning and executing environmental protection must guard the barriers and carry out inspection conscientiously. In the recent Conference on Environmental Protection Work sponsored by the city Revolutionary Committee, concrete requirements related to doing environmental protection work well have been proposed and arrangements for work that needs to be done in the next 2 years have been made. Every unit must steadfastly execute its task 100 percent. Every unit must, under the leadership of the party Central Committee, the State Council, the City Commission, and the City Revolutionary Committee, fully display the superiority of the socialist system, depend on the masses, take effective measures, speedily treat the sources of pollution, strengthen scientific research, elevate management standards, and strive to build our capital into a clean and beautiful modernized metropolis as soon as possible.

9113

CSO: 5000

TRANSFORMING BEIJING INTO SANITATION SHOWCASE URGED

Beijing RENMIN RIBAO in Chinese 21 May 79 p 1

[Article by Wang Suqi [3769 2885 6386]: "Strive To Transform Beijing Into a Modernized, Clean Metropolis; the Municipal Revolutionary Committee Held Conference on Environmental Protection Work; It Summons Every Front To Unite Forces, To Take Positive Measures, To Overcome Difficulties with All Means and Methods, and To Do Environmental Work Really Well"]

[Text] A conference on environmental protection work was held on 12 May under the auspices of the [Beijing] Municipal Revolutionary Committee. Every front all over the city is called on to join in a struggle to transform our national capital into a clean metropolis at the same time as we strive to develop production and to speed up the construction of the Four Modernizations, according to the spirit of the Third Plenum of the 11th Party Central Committee, by uniting forces, strengthening scientific research, elevating management standards, taking positive measures, overcoming difficulties by all means and methods, and carrying out environmental protection work well.

A total of over 1,800 persons who attended the conference represented various government units and private sectors, including concerned units of the municipal revolutionary committee; the municipal trade union; persons in charge of various key enterprises and the concerned government departments at district, prefecture, and bureau levels; the concerned department of the State Council; persons in charge of the environmental protection of the troops stationed in Beijing; and persons in charge, technicians, and workers from various units engaged in scientific research, education and sanitation work.

Vice Chairman Bai Jeifu [4101 0014 1133] of the municipal revolutionary committee spoke at the conference, and a person in charge of the office of environmental protection presented a report entitled "The State of Beijing Environmental Protection Work and the Tasks for 1979 and 1980." The comrade in charge of the municipal party committee and the municipal revolutionary committee presented embroidered flags to the following 12 advanced units which have done their environmental protection work well: Beijing Fireproof Material Plant, Beijing Spray Paint General Plant, Dongfanghong Oil Refinery

of Yanshan Petrochemical General Corporation, Beijing Organic Chemistry Plant, Beijing Electric Plating Plant, Beijing Nylon Fiber Plant, Beijing Northern Suburb Lumber Plant, Beijing Vehicle Section of Beijing District Railroad Bureau, Beijing Guanghua Dyeing and Weaving Plant, Beijing Leather and Hardware Plant, the Street Office of Erlong Road in Xicheng area, and Beijing Hot Springs Tuberculosis Hospital. Awards were also given to 125 advanced groups and 173 advanced individuals including, for example, the mercury treatment group of the Beijing Chemical Industry Plant, the wastewater workshop of Yanghua Factory of the Yanshan Petrochemical General Corporation, the phenol recovery workshop of the Shougang Coke Chemical Plant, the wastewater treatment group of the Beijing Woolen Blanket Plant, the environmental protection inspection center of the Beijing Bureau of Mechanical Industry, the Xidan Cleaning and Dyeing Basic Store of Xicheng Area Service Corporation, the Chinghuachi boiler room in Xuanwu area, the solid ammonium sulfate group of Changping Prefecture Chemical Fertilizer Plant, the boiler room of Huaqiao Building, the scientific research group of the Institute of Labor Protection Science, the environmental chemistry department of Beijing Industrial University, and the boiler room of No 3401 Plant of the Chinese People's Liberation Army.

It was pointed out at the conference that the environmental protection work of Beijing Municipality was developed step by step under the leadership of the party Central Committee, the State Council, and the municipal party committee. They have, over the years, developed environmental protection propaganda, strengthened the system of justice and management, established environmental protection organizations at each level, organized the city environmental protection scientific research institute and the environmental protection surveillance station, and accomplished a series of items related to environmental protection. In the field of protecting the sources of water, emphasis has been placed on the seven rivers and three reservoirs which have important direct bearing on the entire city and on the treatment of a number of key pollutants. Today, 67 percent of the sources polluting the rivers has been treated and 60-80 percent of the key pollutants such as phenol, cyanide, mercury, and cadmium have been treated. The quality of water of Changhe and Liaohuahe has been improved, while the quality of water of the government reservoir has been getting better and better, and the quality of water of the Miyun and Huairou reservoirs has been kept basically clean. In the field of eliminating smoke and dust, more than half of nearly 14,000 boilers, industrial furnaces and kilns, and tea-baking ovens have adopted measures to eliminate smoke and dust. As a result, dark smoke no longer comes out of half the total number of chimney stacks, and approximately 100,000 tons less dust is now discharged into the air all over the city each year--together with significant savings in coal consumption. Those plants which pollute the heavily populated areas are handled according to the principle of "treatment, remodeling, merging and relocation." While the treatment is being carried out, there are already 42 plants which are making rearrangements, merging, or relocating.

Many enterprises have combined the treatment of pollution and the unfolding of overall utilization and have achieved some definite results. The products produced from utilization of the "three wastes" over the entire city during the period from 1972 to 1978 are valued at more than 400 million yuan. A series of units, organizations, and individuals who are advanced in environmental protection work has suddenly sprung up.

The conference recognized that there are still many problems and that the progress of environmental protection work is rather slow, due partly to the interference and destruction of Lin Biao and the "gang of four" and partly to our lack of understanding of the true significance of environmental protection, our lack of experience, and the limitations of materials and technology. With the progress of industrial production and urban construction, more pollutants will be added to the list and environmental pollution will become more and more critical. The present environmental status of our city is very unbecoming to its position as the nation's capital.

The conference has emphatically pointed out that doing the environmental protection work of the nation's capital well is a task which cannot brook a moment's delay. We must make up our minds, take effective measures, and strive to arrest the spreading of pollution by the end of 1980. To reach this goal, the following work items must be accomplished in this and subsequent years: 1) Protection of water sources: We must continue to keep under control the sources of pollution of the seven rivers and three reservoirs, and also to treat the key pollutants such as phenol, cyanide, mercury, arsenic, cadmium, lead, oil, and various organic compounds. We must finish construction of the main sewer pipe in the western suburbs, the Gaopaidian Waste Water Treatment Experimental Plant, and the Liangmaqiao Garbage and Sewage Chemical Treatment Experimental Plant. 2) We must continue to work on eliminating smoke and dust in order to protect the atmosphere. Boilers, industrial furnaces and kilns, and tea-baking ovens on some 40 streets within the city limits and suburbs must solve their smoke problems. The key units whose chimney stacks spew dark smoke must adopt positive measures to eliminate the dark smoke. At the same time, we must popularize the supply of heat from utilization of waste heat, solar energy, and geothermal energy. 3) We must improve the city environment by reorganizing a number of plants which pollute the environment and disturb the people. 4) We must accomplish, according to the schedule published jointly by the State Council and the city revolutionary committee, the first stage of pollution-abatement construction work. Those units which fail to accomplish the task assigned will, according to the rules set up by the national government and the city revolutionary committee, be forced to shut down, and responsibility for it will be investigated. We must strengthen management of the existing pollution-fighting equipment so that such equipment can fully display its effectiveness. We must transform a number of plants into clean plants through intensified treatment and proper management of the enterprises. 5) We must insist that pollution-prevention equipment must be designed, constructed, and put into action at the same time as the

main body of the plant when a plant is newly built, expanded, or remodeled. We must insist on this principle of "three simultaneous actions" in order to be able to prevent new pollution problems from being created. We must strictly control urban planning and make rational arrangements for industry. We must never again build large and medium-scale plants or plants which may pollute the environment within the city limits or the suburbs. Today, the commune and brigade enterprises are growing very rapidly, and most of them are relatively simple and unrefined. They lack the ability and power to carry out pollution treatment well. The concerned departments of the city, ward, and county must give them support and assistance so that the principle of "three simultaneous actions" can be upheld. 6) We must actively unfold the environmental protection research and surveillance work. We must establish a citywide environmental protection surveillance network involving all departments including industry, communications, public utilities, sanitation, hydrology, forestry, meteorology, and geology. 7) We must strengthen the organization by cultivating the cadres who will be in charge of environmental protection work and continuously upgrading the technological as well as the management standards.

The conference demanded that the leaders at every level actually include environmental protection work in their agenda. Environmental protection is an important, integral part of Four Modernizations construction. It is one of the indispensable conditions for realizing the Four Modernizations. As such, it has been written into our constitution. Doing this work well has a far-reaching significance toward developing industrial and agricultural production, protecting people's health, and speeding up Four Modernizations construction. Every concerned department must include environmental protection in its economic plan, draft the plan well, itemize the projects according to the year, and finish the work in groups by installments. Environmental protection work must be treated as one of the indices for rating the performance of an enterprise in accomplishing the national plan. We must include environmental protection work as one of the factors in judging whether a plant may be bestowed the title of "Daqing-like enterprise." Any plant which pollutes the environment and does not actively treat its pollution problems should not even be considered for nomination. Those enterprises or individuals who contributed significantly toward environmental protection should be praised. Enterprises or individuals who contributed to any serious pollution accident must be held responsible for this action and be punished either through economic, administrative, or legal measures. The conference further appealed to the vast majority of cadres and masses of the entire city to start acting, on the basis of the accomplishments already achieved, to continue to work hard, united in heart and effort, to do the work well, and to transform our national capital into a clean metropolis.

9113

CSO: 5000

IMPROVEMENT IN SANITATION CONDITIONS HAILED

Shanghai JIEFANG RIBAO in Chinese 20 Jun 79 p 2

[Article by Zhang Li [1728 5461]: "Chenjiaqiao and Bansongyuan Streets Have Done Their Environmental Protection Work Well; the Plant Enterprises Pass the Smoke and Dust Pollution Inspection"]

[Text] Chenjiaqiao and Bansongyuan streets have promoted reconstruction of the furnaces and kilns of various street factories and enterprises and thus lightened the air pollution due to smoke and dust by adopting a method of issuing a certificate of clean air.

The steam boilers and the industrial furnaces and kilns belonging to a number of plant enterprises located on these two streets used to consume a large quantity of coal, and the smoke and dust that spewed from their chimney stacks seriously polluted the air. The neighborhood inhabitants could not open their windows to air their houses, and the people's health was seriously affected. As a result, there used to be friction between the factories and the inhabitants. For the sake of environmental protection, a committee for the elimination of smoke and dust are organized in February of this year by these two streets, in accordance with the spirit of a relevant document published by the Municipal Revolutionary Committee. The street committee, together with the environmental protection organization, called a conference of the persons in charge of the environmental protection of each plant enterprise, propagandized the importance of the works related to eliminating smoke and dust and emphasized its urgency, and demanded that all boilers and industrial furnaces having a capacity of more than 0.8 ton/hr of evaporation volume or more (including forging furnaces, annealing furnaces, cupolas, and mold-baking furnaces) install mechanical discharge and dust removers. Those plants which achieve the national standard of dust concentration of 200 mg/m^3 or less, and a combustible component of furnace slag of no more than 15 percent, will be issued a certificate attesting to their achievement. Those plants which fail to achieve the national standard, those which do not attach importance to the matter, and those which do not have plans for dust removal will be given a date by which they must

remodel their furnaces. If the order is not complied with, the fuel supply to those plants will be curtailed proportionately. At the same time, the committee for the elimination of smoke and dust has organized those units which are honestly unable to remodel their furnaces to observe and learn from the advanced units and has given assistance to these units in solving their problems. As a result, those plants which used to drag their feet have finished the construction of smoke and dust removers. For example, Shanghai Electric Power Repair General Plant was one of the plants which at first did not attach importance to this work. Today they have established an environmental protection leading committee for this express purpose. They are studying in earnest various means of eliminating smoke and dust in order to finish their task ahead of the deadline. By this date, more than 65 percent of the large and medium boilers and industrial furnaces and kilns on these two streets have already installed smoke and dust removers, and a portion of them are in the process of remodeling. According to the statistics, the boilers and the industrial furnaces after remodeling have not only basically solved the problem of air pollution due to smoke and dust but also have achieved savings of 10 to 20 percent in coal consumption.

During the course of remodeling the furnaces, the committee for the elimination of smoke and dust has also organized a mass surveillance network consisting mainly of old retired workers, charging them with the responsibility of observing the effect of the furnace remodeling and informing the plant of any problems they may detect for further improvement.

9113

CSO: 5000

PEOPLE'S REPUBLIC OF CHINA

UNSANITARY FOOD PROCESSING PRACTICES SCORED

Shanghai JIEFANG RIBAO in Chinese 18 Jun 79 p 3

[Article by Fu Xudong [0265 2485 2639] of Company No 18, Farm No 54: "Stop Unclean Salted Mussels From Being Sold"]

[Text] Comrade Editor:

From May to July each year, when mussels are in season, there are a number of people who come to Shanghai from outside and rent rooms in the farmhouses near the beach. They will catch mussels, briefly pickle them with salt, and then bring them into the city to sell them from door to door.

The process of pickling these mussels is highly unsanitary. The mussels are slovenly washed in the river water and then pickled immediately in salt. Because the catch is big and there are not enough containers for pickling, questionable containers such as containers which originally contained pesticides or chemical fertilizer, or, worse, manure barrels are used. What is even more serious is the fact that some of these people are afflicted with diseases which seriously contaminate the mussels. The inhabitants can become sick or suffer food poisoning or endanger their health from eating these contaminated mussels.

In order to protect the health of the vast masses, the industrial and commercial authorities are urged to tighten control over the market and to take strong precautionary measures to stop unclean salted mussels from being sold.

9113

CSO: 5000

WORKERS COMPLAIN ABOUT PLANT POLLUTION

Shanghai JIEFANG RIBAO in Chinese 20 Jun 79 p 2

[Article: "Workers and Inhabitants Complain About the Damages Wrought by the 'Three Wastes' of Yuyuan Spring Plant"]

[Text] Editor's Note:

Comrades from Chenjiaqiao and Bansongyuan streets in the southern part of the city have stepped out of their offices and gone deep into the production groups and factories in the streets and lanes, not only propagandizing but also taking effective measures to eliminate pollution by the "three wastes." They have very thoroughly done work related to environmental protection. Their spirit is worth praising, while their way of doing things is worth promoting.

Pollution abatement and environmental protection occupy an important part of the content of the Four Modernizations; they constitute an indispensable part. While we busy ourselves with socialist modernization and industrial development, we must attach importance to environmental protection and solve the problem of environmental pollution. Only by doing this work well are we able to protect the people's health, protect natural resources, protect the development of production, and quicken the pace of construction of socialist modernization.

Doing environmental protection work well is the joint responsibility of the entire citizenry and the government units concerned. Environmental pollution in Shanghai has already reached a very critical stage; we must call everybody's attention to this matter of great importance. We would like the street district, the industrial department, and the scientific research department to work jointly in developing work related to environmental protection, and to steadfastly pursue this goal. The leading comrades of the Yuyuan Street Enterprise Group and the Yuyang Spring Plant have much to learn from the comrades of Chenjiaqiao and Bansongyuan streets as to their attitude and their way of doing things. We would like for these leading comrades to look for ideological discrepancies and reestablish their sense

of duty to care for the workers' and the inhabitants' health by taking the initiative to do well the works related to the preventive treatment of the "three wastes."

Comrade Editor:

We, the workers at the Yuyuan Spring Plant and the neighborhood inhabitants, who are in a sufficiently irritated frame of mind, would like to report to your daily about the damages to the health, lives, and properties of the workers as well as the neighborhood inhabitants wrought by the "three wastes" of the said plant.

The plant workshops (including the heat-treatment workshop for quenching and generating oxygen, the blackening workshop, and the grinding workshop) are spread out on three densely populated streets and lanes along the Yuyuan Road. Every day the heat-treatment workshop releases a large quantity of malodorous gas and discharges highly poisonous wastewater directly into a sewer without treatment. Blowers of the blackening workshop blow a large volume of poisonous gas directly into the doors and windows of the inhabitants' houses. As a result, many inhabitants complain of dizziness, chest pains, nausea, vomiting and coughing, and dare not open their windows. The plant often runs night shifts also; thus the air is constantly filled with the poisonous gas and noise. Illnesses caused by these are on the rise, and a row of pine trees in front of the houses adjacent to the plant have all died of suffocation. The health of the workers at these workshops has been most seriously damaged. Those comrades who have worked at these workshops for an extended period of time all have different degrees of pathological symptoms. The workers at the plant and the inhabitants living nearby have a very strong opinion about this matter and demand a speedy improvement of the situation. However, some of the cadres of the plant and the Yuyuan Road turn around and label those who demand solution of the "three wastes" problem as "capitalists" and declare that they should be ignored, and so on.

The oxygen-generating workshop has repeatedly had many fire alarms. Yet the concerned leading cadres of the plant and the street have not paid any attention to the matter and have not done anything to improve the situation. An important oxygen-generating process has been operated by a person who is mentally deficient. Once, the bottom of the oxygen-generating furnace melted down and liquid chemicals spilled all over the place, causing thick dark smoke to rise three stories high. A pile of combustible and explosive substances in the shop barely escaped catching fire, thanks only to the workers and inhabitants who came quickly to help and to call the firefighting unit so that the fire was put out in time. The plant leaders did not learn a lesson from this, and there have since been two more fires which charred the front door of the workshop. One of these two fires occurred after the plant had been criticized in a notice issued by the city office of environmental protection. The grinding workshop lacks

vacuum cleaning equipment and other safety measures. The shop is always filled with dust and noise, and vibrations cause teacups to rattle in the house upstairs from the shop. Once, a grinding wheel which was spinning at high speed flew out into the yard of an inhabitant and made a big hole in the cement floor; fortunately there were no casualties. Immediately after this accident, the main responsible person of the street enterprise group casually took a walk around the site and, without taking any precautionary measures, ordered the operator to start up the grinder again with half the grinding wheel attached to it; this was immediately opposed by the workers.

The damages wrought by the "three wastes" and the numerous accidents have been investigated by the office of environmental protection. The plant has been charged as one of the units having the most serious pollution problems and has been given notice to rectify the situation before a certain date. At the beginning of this year, the leading comrade on the city commission made a special announcement concerning this matter and demanded either a speedy solution or else a halt to or a change in production. This was followed by an inspection by the city and regional office of environmental protection. Only after repeated urging did the plant organize a "three wastes" treatment committee. Today, however, only one frame for a vacuum cleaner has been built in the grinding workshop, no vacuum cleaner is in operation yet, and the workshop is filled with dust and noise as usual. The oxygen-generating workshop has taken an impractical measure. They have tried to discharge the poisonous smoke and gases into the sewer by means of a forced draft fan. In fact, not only has the problem not been solved, but the situation has been made worse. Now the smoke rises from the covered drainage ditch in front of the inhabitants' houses. The harm brought to the inhabitants is even worse than before; the poisonous smoke rises from the covered ditch into the kitchens and pollutes the food all day long. An even more serious problem concerns an incident not long ago when the plant leader ordered a considerable amount of the concentrated sulfuric acid and caustic soda used in the blackening workshop to be dumped directly into the sewer without treatment.

The health of the workers and the inhabitants who live day in and day out in such an environment is getting worse every day. Therefore, complaints and grumbling are dominant everywhere. On the night of 21 May there was another fire alarm in the oxygen-generating workshop, with flashing flames and thick smoke. The inhabitants were so scared that nobody slept a wink all night long, feeling very insecure. There was another fire alarm at 7 p.m. on 31 May. We demand that the responsible person of the Yuyuan Road Street Enterprise Group and the leading cadres of the plant take effective measures with an attitude that is responsible toward the country as well as the people, and speed up the solution of these problems. At the same time, we also demand that the concerned superior leader take another step forward and supervise the plant better.

Submitted by a group of the workers of the Yuyuan Spring Plant and a group of the residents of No 395 Lane, Yuyuan Road.

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

POLLUTED YALU RIVER--Beijing, 25 Nov (KYODO)—Fish and fresh water shrimps caught on the Yalu River, dividing China and North Korea, cannot be used as food because of the polluted state of the river caused by discharge of harmful waste from factories, the GUANGMING DAILY reported Saturday. In Dandong City, Liaoning Province, some factories continue to discharge waste, which include oil and phenoil, into the 790-kilometer-long river despite warnings from environmental protection authorities. The China-Korea Oil Transportation Control Office also discharges harmful water into the river according to the daily. This caused decrease in annual fish haul from the river sharply from 500-800 tons to 10-15 tons and moreover, the fish now are not fit for human consumption, the paper said. Environmental protection officials in Dandong have fined seven factories, including the Gas Corporation, for violating the environmental protection act, it added. [Text] [Tokyo KYODO in English no time given 25 Nov 79 OW]

CSO: 5000

DROUGHT CAUSES SCARCE WATER SUPPLY IN RURAL AREAS

Seoul THE KOREA TIMES in English 17 Nov 79 p 8

[Text] Provincial cities including Taegu and Kwangju and a number of islands in the West Sea have been suffering difficulties in getting potable water these days since the two-month drought has dried up wells and reservoirs.

According to reports from Kwangju, Cholla-namdo, citizens have to buy drinking water for 3,000 won for one drum in the worst cases. Residents in Yongkwang-kun and Wando Island have been supplied drinking water every other day or once in five days since early this month.

Most wells in Shinan-kun and Yochon-kun have dried up due to the drought prevailing over the last two months.

In Popsong-myon, Kwang-yang-kun, one drum of drinking water is sold to residents for 1,000 won, the reports revealed.

The reports said that Kwangju City was also planning to reduce piped water supply to an every-other-day basis from mid-December if the current drought continued. Already water in three reservoirs around the city has been reduced by half.

The thirst of Chonju City has been appeased more or less owing to the recent snow, but it is feared that if the current dry spell goes on some 20 days or more, water will have to be supplied on an every-other-day-basis.

The Cholla-namdo provincial government where the difficulties in getting potable water are most serious began supplying drinking water to 21 islands in the West Sea on Nov. 10 by operating 10 vessels carrying water on a 20 liter per person basis daily. The remaining 67 islands will soon get water from inland areas with a total of 46 water-carrying ships working.

Weathermen at the Central Meteorological Office said that the dry spell had been prevailing since the beginning of last October and in Seoul, Suwon, Inchon and some other areas rainfall recorded was much less than in previous years since last August.

REVITALIZATION OF HAN RIVER URGED

Seoul THE KOREA TIMES in English 6 Nov 79 s-p 3

[Excerpts]

Sewage, the oldest form of water pollution, constitutes the gravest cause of the deterioration of the Han River, followed by industrial waste and synthetic detergents.

Other elements which bring about degradation of the river include wastes from the numerous floating restaurants on the river, black water containing coal cinders from mines, and oil slicks from vehicles which collect sand in the riverside areas.

According to the Health-Social Affairs Ministry, some 3.25 million tons of sewage and waste water are discharged into the Han River a day. The amount of dirty water flowing into the river is almost the same as that of piped water supplied to households in the capital city.

There is only one sewage disposal plant now in full operation with a daily treatment capacity of 250,000 tons of sewage.

There is another sewage disposal plant near the Chungnangchon Stream but it is still in trial operation, treating 210,000 tons a day.

From these figures, an estimate can be formed: Only some 7.7 percent of sewage and waste water discharged from across the capital city

is treated before flowing into the river.

Prof. Kim Tong-min of Seoul Municipal Industrial College has made a report on sewage discharge in the capital city for the year 1977. He said that household sewage constituted some 78.6 percent of the waste water collected from Seoul.

He suggested that the government make more efforts to increase sewage disposal plants instead of strengthening control over factories discharging waste water.

He said that it was most urgent for the government to convert the traditional latrines to flush toilets.

Since the northern areas of the city have larger populations than the southern parts and the former discard lots of sewage, the downstream section of the river is more seriously contaminated by waste water.

The river near the Nanjido and Haengju areas has formed a decayed water region and the water there cannot be used even for industries, let alone for drinking.

Though belatedly, the city administration has decided to remove all floating restaurants on the river by the end of the year.

Some 120 such eateries are in business on the Han River, discarding various waste materials and leftover food into the water. In the upper stream on the Kui Reservoir are operating 80 eateries, contaminating the reservoir which is a major source of piped water.

CSO: 5000

HARMFUL HEAVY METALS FOUND IN UMBILICAL CORDS

Seoul THE KOREA TIMES in English 23 Oct 79 p 7

[Text]

Various harmful heavy metals have been detected in umbilical cords collected from obstetrics/gynecology clinics, indicating transfer of the metallic substances accumulated in the mother's body to the fetus, a report to a health seminar revealed yesterday.

The report, made by a research team from the Korea University Preventive Medicine Laboratory, was presented to the ninth Asian Industrial Health Seminar which opened at the Hotel Shilla yesterday.

The laboratory's report also showed that the average amount of lead contained in human hair in Korea was up to 11 times greater than the amounts detected in foreign countries.

Another shocking revelation was the discovery of benzo(a)pyrene, a cancer-causing substance, in the air of Seoul.

Seventy-five research reports will be presented to the week-long seminar, which is participated in by 300 experts from 16 Asian countries.

A team from the Korea University laboratory, led by Prof. Yom Yong-tae, has checked heavy metals contained in umbilical cords and compared the amounts to those in the mother's body. They had a total of 104 samples.

The researchers have discovered that the average ratio of the content of the same heavy metal in the umbilical cord and in the mother's body varied according to the kind of metallic substance and ranged from 62 percent to 154 percent.

In the case of cadmium, 0.062 microgram was detected from 1 ml. of the mother's body, while an average of 0.042 microgram was found from the fetus, showing a ratio of 70 percent.

The ratios are 70 percent in the case of lead, 82 percent in zinc, 62 percent in copper and 154 percent in iron, the report said.

INTERNATIONAL AFFAIRS

BRIEFS

CEMA COOPERATION IN ENVIRONMENTAL CONSERVATION--Moscow PRAVDA in Russian 15 November 1979 publishes on page 4 under the rubric "CEMA: Boundaries, Quest, Problems" a 1,500-word special correspondent S. Baygarov article entitled "What Will We Leave Our Descendants?" It deals with cooperation among the CEMA countries in developing nature conservation measures, devoting particular attention to their record on preventing pollution of water resources. [LD201131 Editorial Report LD]

CSO: 5000

PARTY ORGAN EDITORIAL VOICES CONCERN OVER SOIL EROSION, POLLUTION

Sofia RABOTNICHESKO DELO in Bulgarian 18 Nov 79 p 1

[Editorial: "Let Us Respect the Land"]

[Text] The land is one of the greatest national riches.

Since time immemorial it has been for us the "food basket" and we identify it with the most valuable thing in life, the mother. The Bulgarian land justifiably deserves this esteemed name. For centuries it has fed and clothed our people and for this reason our people defend it with their blood, wet it with their sweat and make great efforts to keep it fertile and generous to them.

The people's government has done a lot in transforming our native land. The soil has been enriched by modern scientific methods and its yield has increased several times. Regardless of all efforts the land remains always under the open sky, exposed to the dangers of erosion and other unfavorable phenomena. In this respect the facts are alarming. The arable land gives way to the growing needs of industry. During the last 15 years alone, over 1,400,000 decares of arable land have been lost. The non-arable land, which is one of the reserves of our agriculture, is also decreasing. Thus, while 30 years ago we had 8 decares of land per person, now we have only 5.6 decares.

Soil erosion is one of the worst enemies of the land. In this respect (to our regret) we have taken one of the leading places in Europe, namely, 50 percent of our land is threatened by erosion. Most alarming is the situation in the Eastern Rodopi Mountains, The Struma riverbed, Sakara Mountain, Strandzha Mountain, and the Danubian lowland.

The enemies of the soil are many. The waters of most of our rivers are highly polluted. Air pollution is also harmful to the natural makeup of the soil. We must also mention another unpleasant fact, i.e., the wide application of pesticides used against weeds and pests.

The examples that show lack of respect for the land are many. And when we add to them the forecasts of the experts, i.e., that industry and construction

will claim 2.2 million decares more up till the year 2000 for building of new plants, dams, canals and roads, the situation becomes even more alarming. It is obvious that our socialist society must take even more drastic and effective measures for protecting the soil. Otherwise, we will unduly burden our future generations.

Our party and the people's government have always devoted great attention, and they continue to do so now, to protection of the environment, including the land. Many governmental regulations have been enacted strictly sanctioning those who abuse and deplete the land. A long-term national program will be ready by the end of this year which will embrace all necessary undertakings for even more efficient struggle against erosion and water and air pollution. Each agroindustrial complex already has at its disposal a soil map of its land together with an agroproduction analysis. However, in order to increase the feeling of responsibility for land preservation in each worker in the socialist society, we must also strengthen the consciousness, develop a national movement, and prepare the ground for a real fight against the air, water, and soil polluters. This is an obligation on the part of the party committees, the Fatherland Front organizations, DKMS [Dimitrov Communist Youth Union], the trade unions and the cultural circles.

The Bulgarian land has always responded generously to all measures for its protection. The greater our respect toward it, the more generous her yields will be. We are urged to care for the land and protect it even better by the ordinance of the Central Committee of the BCP and the Council of Ministers of 10 November of the current year, which categorically proves that the increase of the national wealth depends on the consciousness and discipline, and on the labor effectiveness of each citizen of the socialist society.

1010

CSO: 5000

AUTOMATIC ENVIRONMENTAL MONITORING SYSTEM TO BE INITIATED

Warsaw EXPRESS WIECZORNY in Polish 15 Oct 79 pp 1, 2

[Article by Jan Stachurski]

[Text] In the next few months, a pilot system of automatic monitoring and measuring posts used to record the level of air pollution will be established in Warsaw. This will be the first phase for incorporating, throughout Poland, the so-called environmental monitoring system--an integrated, automatic, computerized information system for observing and monitoring the environmental conditions. Specialists from the Institute for Development of the Environment [IKS] have already prepared the technical and economic guidelines for the monitoring system.

Work on the concept for the computerized information center of the monitoring system is now being conducted. There is a concept in which the center would be situated on the premises of the Information Science Research and Development Center of the environmental protection department in Plock. The results of measuring the environmental conditions throughout Poland would be fed into the computers installed there.

Dr (Engineer) Andrzej Jagusiewicz, who is from the IKS and is the coordinator of this program, provides the details of the new system: "We have prepared the guidelines for five subsystems--standing water, flowing water, underground water, air and eco-systems. In regard to river water, we have used here the results of research conducted within the framework of the government program "Woda." We currently have 2,500 river measuring posts, in which the oxygen level, content of mineral substances and other pollutants in the water, etc, are tested. Approximately 40 automatic stations for measuring water quality will be active in the monitoring system; 15 of these stations will be used to protect the most important water supply intakes. When the automatic sensors detect excessive pollution, the water supply systems will be notified immediately. Several automatic pilot stations of this type are already in operation along the Odra River."

Air purity is being tested at 10,000 posts situated on 12 percent of the surface area in Poland. The concentration of sulfur dioxide, suspended

dust and dust fallout is being tested, The purpose of this subsystem in the monitoring system will be to form a network of approximately 1,000 automatic measuring posts in the most threatened areas. Application work on establishing a protective "umbrella" over Warsaw is in the final stage. Twelve measuring booths for automatically recording the condition of the air which is inhaled by Warsaw residents will be established in the city area.

CSO: 5000

AIR, WATER POLLUTION PROBLEMS IN MACEDONIA

Zagreb VJESNIK in Serbo-Croatian 27 Oct 79 p 7

[Excerpts] The republic committee for environmental protection warns that Macedonia is on the verge of becoming a very polluted area. Skopje is already a polluted area. Daily measurements have been showing that in some parts of the city the pollution is so high that it impedes normal breathing. Residents who live in the vicinity of the "Alumina" factory complained recently to the committee for environmental protection and to the Assembly of the SR of Macedonia. It was established that the "Alumina" factory discharges every day from 35 to 156.3 milligrams of dust per square meter. Even more dangerous are the "Zeljezara" factory, which discharges 665.2 milligrams of dust per square meter and the "Usje" cement factory, which discharges as much as 1,157.7 milligrams of air pollutants per square meter. The maximum level of permissible concentration of air pollutants is 300 milligrams per square meter in 24 hours.

The obvious condition of Skopje is very serious. Besides these "records" the air is polluted every day by about 20 additional plants, of which only 15 have filtering equipment.

The situation outside of Skopje is also very worrisome. The "Teteks" factory from Tetovo discharges every day about 190,000 cubic meters of various gases and one and a half tons of dust.

In Kumanovo the air is polluted by 27 plants, in Stipe by 24 plants.

The greatest danger for Titov Veles is the "Zletovo" zinc and lead smelter. However, about 20 other plants are contributing toward polluting the air and none has done anything to reduce the pollution through filters.

Not only the air is in danger. The rivers have also been poisoned. Data tell that the lakes have also been endangered. The rivers and the lakes have been polluted with waste waters from the urban sewage systems and industry.

The official data indicate that 360 industrial plants in Macedonia discharge waste waters into the neighboring rivers. Of the 13.8 million cubic meters of water, which is as much as they use and discharge, only 19 million cubic meters are filtered, or 14.6 percent. The remaining cubic meters of water are poisoning the rivers.

The artificial fertilizers and chemical fruit sprays have also become a new danger for rivers and lakes. Thus, for example, the "Crvena zvezda" combine alone uses fertilizers on 24,000 hectares. The rains carry a large part of these fertilizers into the neighboring rivers. This also happens in Prespa. The apple orchards have increasingly been polluting the lake.

The committee for the environmental protection believes it is time to undertake serious measures for stopping the pollution.

CSO: 5000

RED TIDE EFFECTS ANALYZED; NEED FOR RESEARCH STRESSED

Havana MAR Y PESCA in Spanish Aug 79 pp 40-43

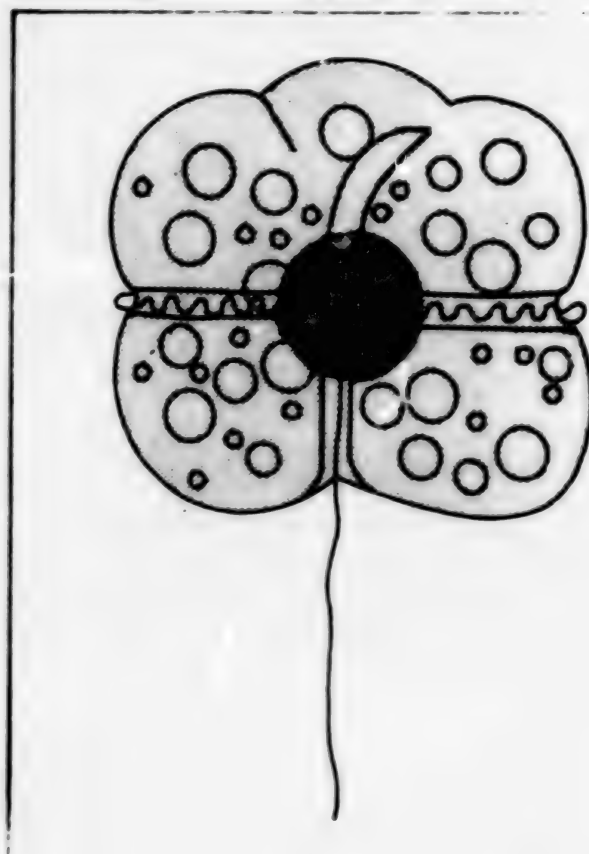
[Article by Dr Luisa Lopez-Baluja: "Do You Know What the Red Tide Is?"]

[Text] The reddish coloration of ocean waters, biological in origin, is a natural phenomenon known since earliest times (208 BC). The Chinese, Japanese and Romans, along with the aboriginal civilizations in North America, already had knowledge of its existence. The first scientific information concerning the appearance of a red tide was provided by Scoresby (1820). In his account of the voyage of the "Beagle" in 1832, Charles Darwin (1809-1882) told of the red coloration of the waters off the coast of Chile, produced by a microorganism. Since these reports, the change in the coloration of ocean waters has become one of the most interesting problems for marine biologists. The Florida coast has been affected by this type of phenomenon, which has been known as the "red tide" since 1844 (the most intense occurrence was in 1946-1947, but its appearance has so far been irregular).

The red tide (marea roja), also known as "hematotalasia," "purga de mar," "tubio," "aguji," "tingui" and by other vernacular terms, is a worldwide phenomenon although it is limited to areas of the ocean where certain physical and chemical conditions come together. It is generally seen in warm, mild waters where there is an abundance of nutriment salts.

The red tide is visible when an unusually dense concentration of microscopic organisms colors the sea water with dark reddish or dark yellowish tones. These microorganisms are generally algae (diatoms, cyanophyceae and more frequently dinoflagellates). Some species are not toxic, but others are and in the latter case, the toxin produced can kill large quantities of fish. There may also be bacteria with properties toxic to fish, poisoning them, as shown by American scientist Selwyn Jack Bein in 1954.

Most of the red tides are produced by dinoflagellates (dino: whirlwind; flagelo: whip), whose name not only alludes to morphological characteristics, but to the peculiar movements causing them to have a spiral motion.



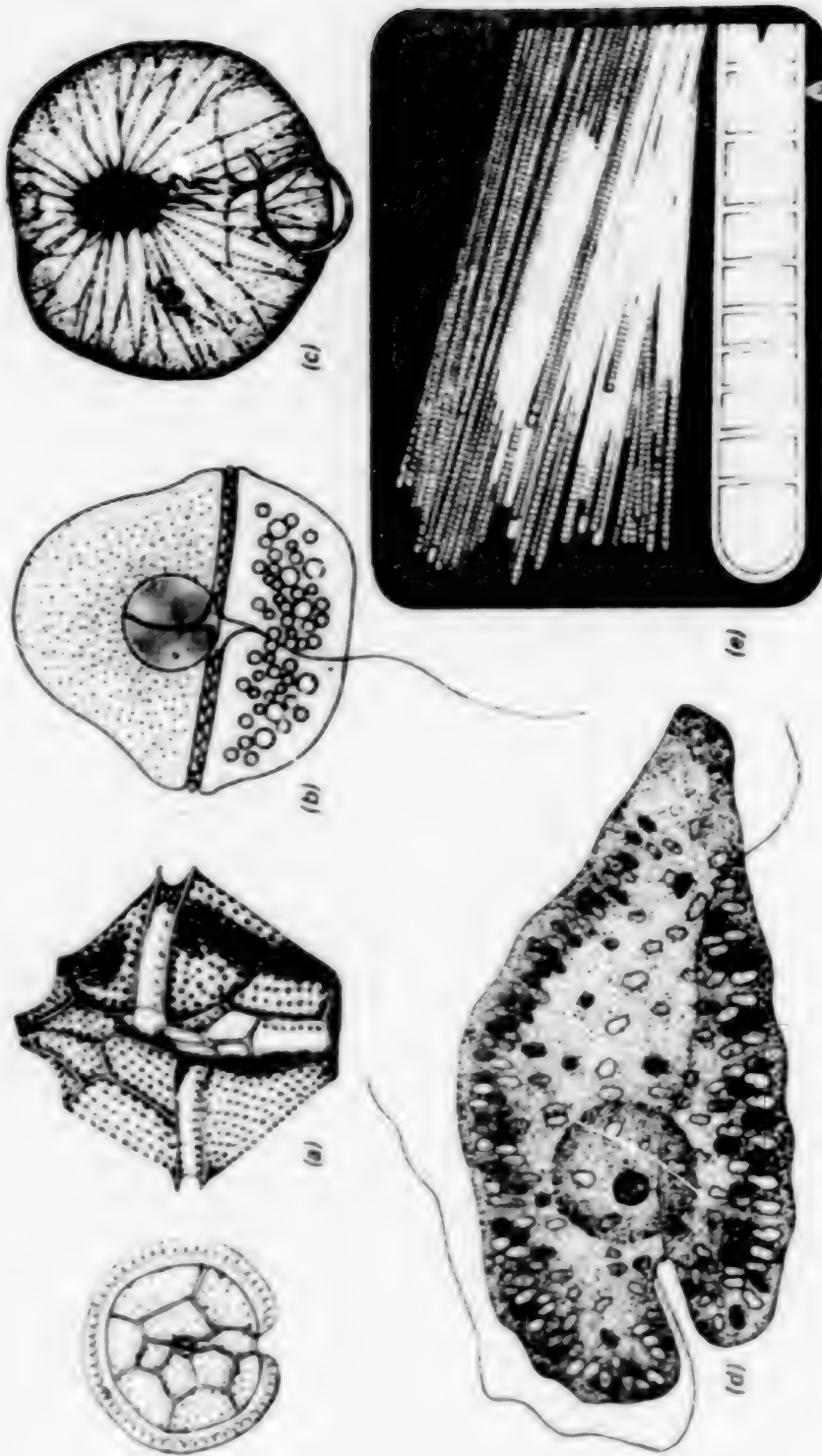
The toxins that have been isolated from the *Gymnodinium brevis* (25-31 micrometers) have a paralyzing effect on the marine organisms that absorb them.

The red tide off the coast of Florida and the ola or marea roja of the Gulf of Mexico are very well known. They are caused by the *Gymnodinium brevis*, which is only 25 to 31 micrometers in diameter. The toxin produced by the tiny cells can kill great quantities of fish which are then carried to the coasts of Florida or Mexico. Nevertheless, red tide does not always mean mortality. Some authors presume that the toxicity which kills fish populations in the Gulf of California is not from the dinoflagellate *Gonyaulax polyedra* (which causes the coloration of the water), but rather, that it is due to a secondary effect (probably bacteria). It is frequently a question of Cyanophyceae (*Oscillatoria erythraeum*), which have no lethal effect on fish (as is the case with the red tides in the Red Sea and off the coast of Brazil). The diatoms can also cause changes in the coloration of the sea, generally greenish yellow, as observed in the Gulf of Paria, Venezuela, due to a high concentration of *Skeletonema costatum*.

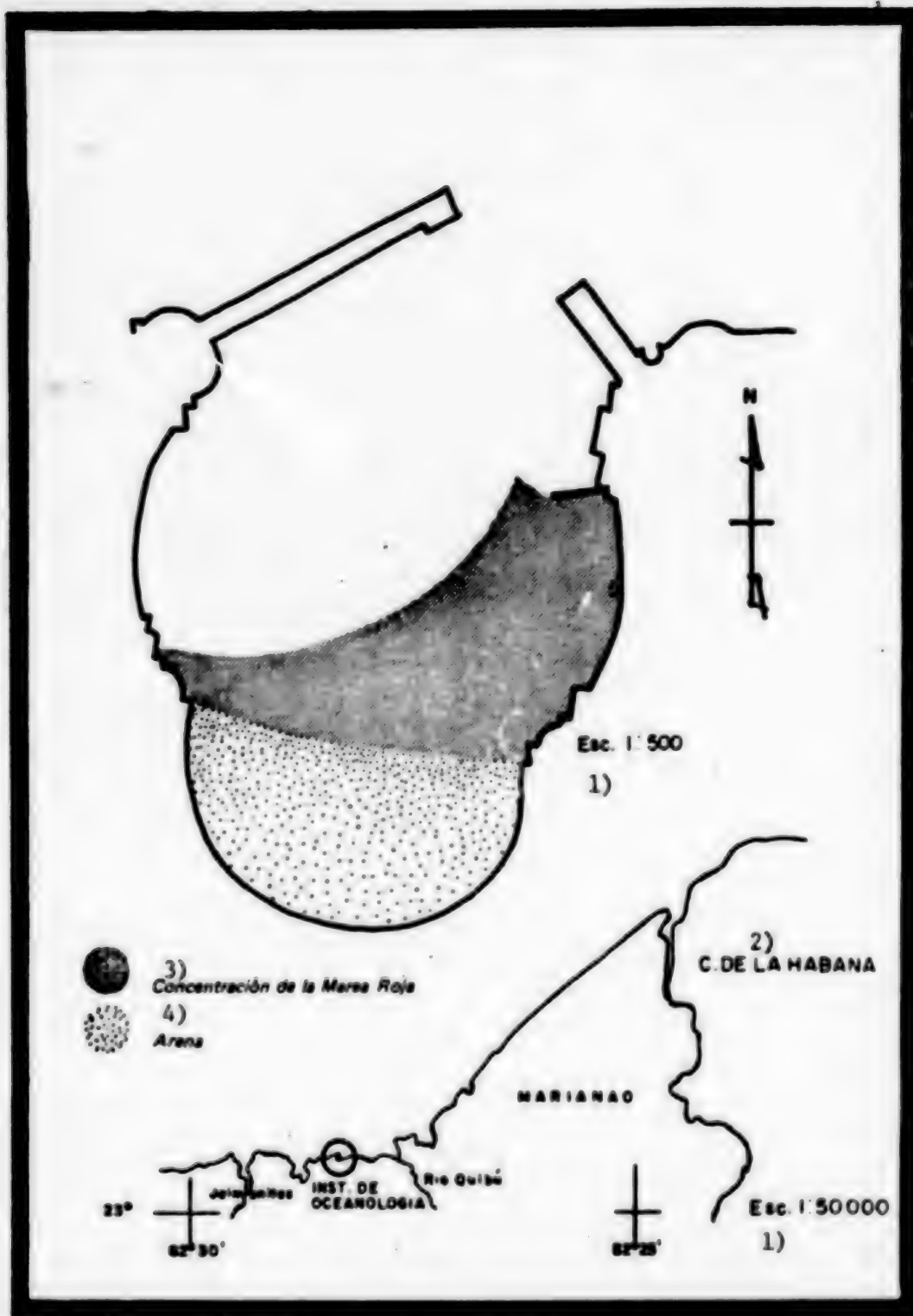


Areas in world's ocean where red tides have been recorded

Key: 1. Mortality reported 2. Mortality not reported



Other species of phytoplankton which cause red tides are the dinoflagellates: a) *Gonyaulax polyedra* (30-40 micrometers); b) *Gymnodinium variabile* (8-40 micrometers); c) *Noctiluca miliaris* (approximately 1,000 micrometers); and d) *Hornellia marina* (16-35 micrometers), along with the Cyanophyceae: e) *Oscillatoria erytraeum* (7-15 micrometers).



Distribution and Concentration of the Red Tide in the Roadstead of Our Institute of Oceanology

Key:

1. Scale 2. City of Havana 3. Concentration of red tide
4. Sand



Microphoto of the live *Peridinium aciculiferum* immediately following collection. (Enlarged approximately 560 times. Phase contrast.)

The red tide caused by toxic microorganisms can cause serious damage to the economy. The effects caused off the coast of Florida have had catastrophic proportions, affecting all kinds of fish -- commercial and noncommercial -- which in turn cause the tourist industry substantial damage when carried to the beaches by the wind and currents. Moreover, the filtering shellfish (oysters, clams, and so on) which live in shallow waters can concentrate the toxin and obviously, their consumption can cause diseases. In Japan, pearl oysters have been affected by the red tide caused by dinoflagellates. In 1955, the red tide in the Gulf of Mexico killed thousands of fish along the Mexican coast and affected shellfish which concentrate the toxin.

The human population has also experienced ill effects from the red tides in Brazil, Mexico and Florida after coming into contact with foam carried by the wind. There have been cases of respiratory problems and eye irritation (although temporary and rapidly relieved). No method has been developed resulting in effective, lasting control of red tides of major dimensions, although the matter is being discussed by a number of scientists who believe that in local situations, chemical substances such as pentahydrate copper sulfate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) can be used since their prediction is possible.

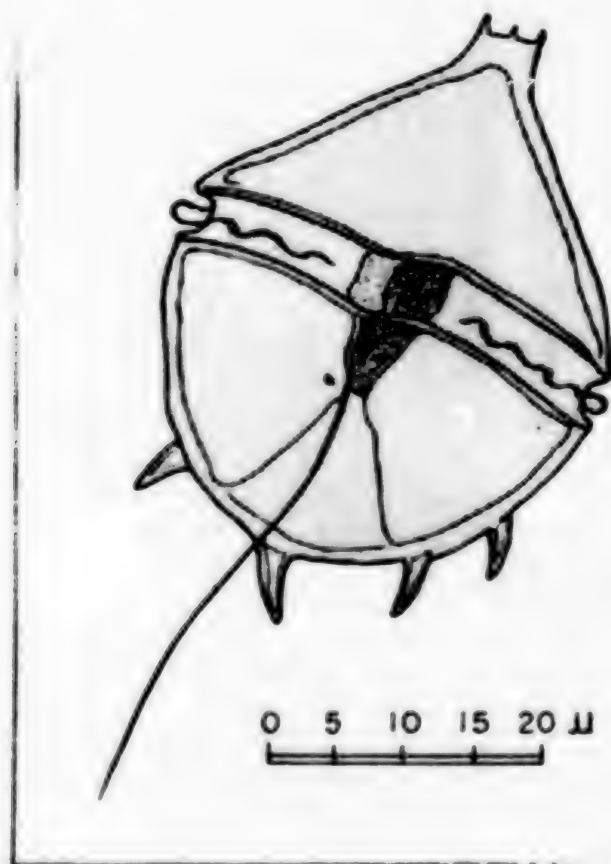
The role of the red tide in the marine ecosystem is not yet totally understood. Most of the reports published on this phenomenon deal with its appearance and its relation to fishing.

One of the examples is the "Yakomizo," produced by a dinoflagellate, which gives the sea a dark yellow coloring and occurs off the eastern coast of the northern district of Japan. During the phenomenon, fishing is poor, but as soon as it disappears, there are optimum catches. Consequently, the Japanese consider the phenomenon as useful or medicinal waters.

In Florida, even though the emergence of *G. brevis* may cause the massive death of fish, fishermen say that after a red tide, the catch of shrimp and crab is better. It is possible that the red tide serves as a kind of biological control and thereby contributes to the balance of nature.

With respect to our waters, the presence of a red sea is a rare phenomenon. To date, one can only point to one red tide which occurred in August 1972 at Playa Baracoa (northern coast of Havana City Province), produced by a dinoflagellate (*Gymnodinium variable*) and another very recent red tide discovered in the roadstead of the Institute of Oceanology of the Cuban Academy of Sciences, in a small artificial bay located in the coastal zone north of Havana City Province between Río Quibu and the coastal town of Jaimanitas. The latter, of an intense dark red color, was observed from 10 to 18 September 1978 and its propagation followed a north-south direction along the eastern side of the roadstead. It advanced rapidly and as it reached the shore of the beach, moved toward the western end. It later increased in intensity and reached maximum development on 12 September. The spot then declined almost as rapidly as it had come and disappeared on 18 September. The phenomenon was also manifested on the small bordering beaches.

A microscopic analysis of the samples revealed that the dark reddish coloration of the waters was due to dense concentrations of a dinoflagellate (*Peridinium aciculiferum*) which has numerous hues ranging from dark red to orange and which, upon reaching a level of up to 112.10^9 individuals per cubic meter of sea water, resulted in the shade indicated. The size of the samples fluctuated between 18 and 50 micrometers in width and between 30 and 54 micrometers in length. Live observation was difficult because of the peculiar rapid, spiral-shaped movements resulting from the whiplike tail. It was necessary to arrest movement by formol in order to facilitate identification, sketching, measurement and the photographing of samples.



The cause of the red tide off the coast of Havana was the *Peridinium aciculiferum* (30-54 micrometers).

With respect to the toxicity that is always mentioned when it is a question of phenomena such as the red tide, it should be pointed out that in the area of the roadstead of the Institute of Oceanology and its adjacent zones, no mortality of marine fauna was observed. Microbiological analyses have also shown the innocuous nature of the dinoflagellate and in order to collect the samples, it was necessary to come in direct contact with the water. Humans suffered no ill effects.

In sum then, the red tide cannot yet be predicted. If this were possible, the adverse effect on economic activities of the countries where it occurs might be reduced or prevented. For that reason and in order to determine the precise role it plays in the marine ecosystem, it is necessary to engage in various types of scientific research.

11,464

CSO: 5000

CUBA

BRIEFS

PORT ENVIRONMENT COURSE--The first course on methods of inventorying and monitoring contamination sources in marine ecosystems has opened in Havana under the sponsorship of the UN development and environment programs. The course, which concludes on 8 December, is being conducted by the port development center. Prominent executives and specialists of national and international organizations will participate in the course. It is being conducted for the benefit of the Havana port which has undergone an accelerated industrialization process with negative effects for the environment. [FL281750 Havana Domestic Service in Spanish 1700 GMT 28 Nov 79 FL]

CSO: 5000

RAIN, FLOODING RESULT IN HEAVY LOSSES

PA182218 Panama City ACAN in Spanish 2245 GMT 16 Nov 79 PA

[Text] Bajo Aguan, Honduras, 16 Nov (ACAN-EFE)--Honduras may have lost some \$60 million during the 5 days of rain that have practically covered its Atlantic coast with water in one of the worst floods of the past 5 years.

Overflying the flooded area one can see that bridges have fallen, railroad sections have been lost, roads have collapsed and entire banana, pineapple, sugarcane and citrus fruit plantations and fields planted with basic grains have been totally destroyed. More than 9,000 houses have been damaged and the thousands affected will be in need of everything for a long time.

The sight is discouraging. The entire coastline, where Santa Barbara, Cortes, Yoro, Atlantida and Colon departments are located, has been devastated.

Here in Bajo Aguan Valley, where the Honduran Government was carrying out its most ambitious agrarian reform program, everything is presently covered with water. Only the tops of African palms can be seen where tree farms once existed, and the tops of telephone poles are the only evidence of the roads below. The roofs of entire villages are all that can be seen above water that is completely red from the mud and so thick it looks like a huge, peaceful, red lake which only birds and helicopters dare fly over.

Agricultural machinery can be seen immersed in the water, having been destroyed along with all other vehicles and the oil extracting plants [las plantas extranctoras de aceite].

Here in Bajo Aguan, communities such as Tocoa, Guaymas, Guanchia, Manizales, Concepcion and several cooperatives lost everything. It is believed that only three people died even though their bodies have not yet been found.

Although rain still falls frequently during the day, the army and the air force have already reached this area where some 8,000 people may have been affected. Project chief Col Carlos Reyes Barahona deplored the situation "because more than \$100 million have been invested here." Bajo Aguan is a colonization project that includes some 5,000 families from all over the country. New crops of soybeans, castor beans, bananas, citrus fruit, maracuya, African palms, basic grains and other agricultural products were being grown here.

People were happy here. U.S. Ambassador Mari-Luci Jaramillo said: "I am very sad all this is flooded now because this project could have become the hope of many poor people in Honduras." She added that she and the embassy's experts will analyze the information she has collected in order to request the necessary aid from Washington immediately.

In the military headquarters of La Ceiba, a city which until yesterday had been isolated by air, land and sea, there is an urgent need to rescue hundreds of people who have been left isolated. However the daylight hours are not long enough and the weather is not helping much either. Dangerous helicopter operations are carried out continuously, but the pilots are experienced and skilled.

CSO: 5000

DEVELOPMENT OF INDIGENOUS METHODS TO FIGHT POLLUTION URGED

Lusaka ZAMBIA DAILY MAIL in English 27 Nov 79 p 3

[Text] Minister of Education and Culture Professor Lameck Goma has called on experts in Africa to "develop and sustain indigenous" methods of fighting pollution and other environmental problems in Africa.

He said it was vital to have local people in our curriculum development centers with appropriate knowledge and skills to produce relevant curricula and instructional materials for use in schools, colleges and other educational institutions.

Prof Goma said this yesterday when he officially opened a 12-day workshop organized by the African Curriculum Organization and the United Nations Environmental Program, at the Educational Services Center.

The workshop, which is discussing the subject: "Environmental education in the school curriculum," is being attended by delegates from Nigeria, Gambia, Mauritius, Tanzania, Kenya and other African countries.

"Most of the present literature on environmental education is by authors from the developed countries and inevitably reflects the biases of educational structures and environmental concerns of such countries.

"Its relevance to the circumstances of Africa must be critically examined before it could be used here. It is important that the materials used in teaching environmental education must be highly relevant to the local conditions, as only in this way can there be assurance that the subject serves a practical and useful purpose," he said.

He added: "There is, therefore, great need to develop and sustain indigenous capabilities in the field of environmental education."

The minister emphasised that for the programme to succeed, there must be qualified teachers and personnel to be deployed in non-formal activities relevant in this field.

"It will be necessary to secure intellectual independence to enable us not only to plan and develop appropriate curricula, but also to publish textbooks, develop methods, produce teaching aids, and prepare and train the required teachers, consonant with the realities and aspirations of Africa."

Prof. Goma said environmental education must not only be given to those in schools, but also to professional people whose technical and management decisions have a material effect on the environment.

Engineers and managers in factories that use natural or agricultural resources and products the processing of which entails discharging various kinds of waste products into the environment, must also be covered in these educational programmes.

He said agriculturists, foresters, hydro-electrical engineers, highway engineers and other construction professionals, architects, physical planners and specialists in land improvement also need to be taught through continued lessons.

The minister pointed out that the biggest challenge facing Africa in the quest for human progress is one that has been termed "the challenge of the environment."

Poor soils and shelter, harsh climate, uncertain and inadequate food supplies are among the problems retarding progress.

"In many parts of the continent there are huge desert, arid and semi-arid areas which cannot support human and animal life, or withstand the numbers of domestic animals possessed and needed by the pastoral populations found there," he said...

But despite these problems, he said, Africa must press ahead to improve the quality of life for its people, most of whom live in conditions of poverty, deprivation and diminished human potentiality.

The minister cautioned, however, that the international concern and fight against pollution, the exhaustion of resources and the degradation of the environment must not be allowed to impede development efforts in Africa.

CSO: 5000

PROGRAM TO CHECK PESTICIDE DANGERS REPORTED

Salisbury THE SUNDAY MAIL in English 2 Dec 79 p 11

[Text]

A NATIONWIDE monitoring programme to determine whether residues of organochlorine pesticides such as DDT are present in dangerous quantities in the environment will begin next year under the supervision of the Ministry of Agriculture.

The move comes after repeated calls by conservationists for the banning of the pesticides, which have been recognised as dangerous to humans and wildlife when present in sufficient quantities.

"There has been no full investigation up to now as to the degree of pollution by organochlorine pesticides in the environment here," said Mr George Herd, head of the Plant Protection Research Institute. "We must find out exactly what the levels of pollution are."

The monitoring programme will be carried out by the Ministries of Health and Agriculture and the Department of National Parks and Wildlife. Government technicians are now deciding upon the specific sampling techniques that will be employed.

FISH

The initial stages of the programme were not expected to make any burdensome demands on the various Ministries' budgets, Mr Herd said. Costs were expected to rise, however, as the scope of the sampling activity increased.

Sampling of wildlife will begin in March or April of next year, he said. Wildlife Department officials have already decided to collect barbel fish from the upper and lower areas of the country's major drainage basins and kapenta from Lake Kariba. Other target animals have yet to be chosen.

Testing of residue levels in soils, cattle and humans would begin somewhat earlier.

The basic thrust of the programme would be to establish just what pesticide residue levels were and then to monitor them over a period of years to see if they were increasing, Mr Herd said.

Soil sampling would at first be concentrated in areas that were known to have been exposed to the pesticides. Data from the Cotton Research Station at Gatooma, where soil history had been recorded for a number of years, would also be used.

Comparisons would eventually be made with areas likely to be relatively free of pesticide contamination. Wankie

National Park might be one.

Methods of testing human subjects had not yet been completely formulated. The analysis of mothers' milk and human fat, procedures used in the United States, might be possibilities.

The debate over the use of organochlorines in this country was renewed recently when the Department of National Parks and Wildlife Management said DDT levels in some of the top-of-the-food-chain birds were becoming high enough to lead to their extinction.

Mr Ron Thomson, Provincial Warden of the Mashonaland South Province, said it was impractical to take larger samplings of certain species of birds.

"Some of these birds are very rare here. We can't go around pinching all their eggs. We have to work from indications," he said.

Mr Thomson said the new survey was a step in the right direction but its results might come too late to save some of the country's predatory birds. Also, the survey was different from the work he had been doing in that it looked at increasing contamination levels rather than focusing on "problem" species endangered by the contamination.

BAROMETER

"The survey will be a barometer of what is happening but it won't tell us if the fish eagle or the peregrine falcon are dying," he said.

Organochlorine pesticides first came into wide use in this country during the late 1940s. They had become popular throughout much of the world earlier in that decade due to their low cost, persistence, low toxicity to people handling them and ability to kill a wide range of insect pests. They were used extensively on crops and to control malarial mosquitoes and tsetse flies.

Opposition to their use began to surface in the 1960s when their nearly indestructible nature began to be publicised. Insects carrying traces of pesticides were eaten by predators which were in turn eaten by other predators. The pesticide residues gradually worked their way up food chains as they were absorbed into the fatty tissues of birds and animals, such as man, that might be far removed from areas where the pesticide was used.

In a number of cases, birds with either low tolerance or high exposure to the pesticides began to

die out. Many Western nations, among them the United States, Canada and Sweden, banned use of organochlorine pesticides in the early 1970s.

Disagreement has remained, however, over just how harmful the pesticides are to humans, all of whom now carry some quantity of the chemicals within their bodies.

A decade ago the DDT content in human tissue in Zimbabwe Rhodesia was found to be the second highest in the world. The average Zimbabwe Rhodesian had 30 parts per million (ppm) in his body, while the average in Hawaii was 84 ppm. Other averages were: Israel, 20 ppm; United States, 10 ppm; and Britain 4 ppm.

One medical experiment in Britain raised DDT levels in human subjects to 600 ppm without registering harmful effects.

However, that experiment has been criticised as not going far enough. Since DDT resides in body fat, its worst effects occur during stress or exertion when fat levels are reduced and the DDT is released into the bloodstream. The British experiment did not create such conditions.

In 1973, a Government policy was instituted here to restrict use of organ-

ochlorines except where they were considered vital and to register substitutes whenever possible.

DDT was restricted to maize and cotton and to mosquito and tsetse fly control. Some additional reduction was forced by security considerations. Between 1974 and this year the use of DDT declined by almost 75 per cent.

There is no certainty that this lower level will be maintained. In 1978, for example, usage was three times this year's level because of a worldwide shortage of endosulfan — one of the main DDT substitutes — and an unusually severe outbreak of a pest that was resistant to other pesticides.

Usage could also increase if planned increases in cotton production in the TTAs are carried out.

If the monitoring programme shows organochlorine levels in wildlife to be high enough to pose a death threat to certain species, would that automatically lead to a ban on the pesticides' use?

No such commitment had been made.

"We are just presenting the facts. After presenting those facts, the Government must decide on its policy."

BRIEFS

LEVEL OF DAMS--In the past week the rains have raised the levels of many of the country's 45 major dams. For the first time this season, three are 100 percent full, and 10 are more than 90 percent full. According to figures released by the Department of Water Development, Blanket, Sheet and Siya dams are 100 percent full. Those more than 90 percent full are Inyankuni, Mayfair, Dutchman's Pool, Ngondoma, The Range, Mwarazi, Impali, Kyle, Lesapi (Lake Rusape), and Manjirenji (Lake MacDougall). Three dams were more than 80 percent full: Ingwezi, Ngesi and Gwenoro. Those more than 70 percent full were Tiyabenzi, Umgululu (Figtree), Antelope, Ncema Lower, Darwendale, Hunyani Poort (Lake McIlwaine), Sebakewe, and Whitewaters. Dams more than 60 percent full were Umgusa Dams, Bangala, Odzani (Lake Alexander), Umhlangwa (Plumtree) Umzingwane, and Blockley. Five dams were more than 50 percent full. They were Mananda, Eben, Mazoe, Mwenje (Lake Noaks), and Mushandike. That left seven dams which were less than 50 percent full: Cactus Poort (48.8), Ncema Upper (43.2), Palawan (37.8), Clas (John Mack Lake) (36.7), Rixon (33.9), Khami (25.6) and Suri Suri (22.7). There were no returns for three dams. [Text]

[Salisbury THE HERALD in English 6 Dec 79 p 6]

CSO: 5000

BRIEFS

POLLUTION CONTROL OFFICIAL RESIGNS--Mr Mike Bulley, the Government's top man in air pollution control, has resigned after only six months in charge of the Department of Health's industrial air pollution division. He is the third top man to resign this year. It leaves the division only six men--three of whom are still being trained--to educate, motivate and police all the major industries in South Africa. I spoke to Mr Geoffrey Craig who, as vice-chairman of the Gas Cleaning Equipment Suppliers' Association, roundly criticised the Department of Health at the recent International Air Pollution Conference in Pretoria. "Mr Bulley's resignation is a disaster," he told me. "With a staff of only four or so to cover the entire country the number of polluters is going to climb. We need at least 20 men in the field. The existing staff is hardly enough for even one industrial town." [By James Clarke] [Excerpts] [Johannesburg THE STAR in English 29 Nov 79 p 4]

COASTAL WATERS POLLUTION TEST--A scientific "mussel watch" on 500 km of coastline between East London and Mossel Bay has disclosed that South African coastal waters in this area are free of metal pollution. The RAND DAILY MAIL reports the work was carried out by the National Physical Research Laboratory. The mussels were tested for traces of nine elements--cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel and zinc. [Text] [Pretoria SOUTH AFRICAN DIGEST in English 26 Oct 79 p 12]

CSO: 5000

BRIEFS

DROUGHT STRIKES KASUMBALESA--Residents of Kasumbalesa border post near Chililabombwe are crossing into Zaire to draw water for domestic use following a breakdown of a pump 3 weeks ago. The situation is so serious that the families who are threatened with an outbreak of an epidemic go into the bush because toilets and bathrooms had become septic. For the past 3 weeks the compound has had no water and immigration officials' families trek into Zaire to get their supplies. Kasumbalesa customs officer in-charge Mr News Mwanza, said a team of technicians from Ndola visited the area last week but left a few hours later after they failed to repair the engine. Mr Mwanza, who is Party youth chairman, said had it not been for his Zairean counterparts who allowed Zambians to draw water from their taps "we simply do not know what should have happened to us." The officials said the matter had been brought to the attention of Chililabombwe governor, Mr Morgan Simwinji, but nothing had been done. [Text] [Lusaka TIMES OF ZAMBIA in English 27 Nov 79 p 5]

CSO: 5000

KIRILLIN SPEAKS ON NUCLEAR POWER, ENVIRONMENTAL PROTECTION

LD232126 Moscow TASS in English 1731 GMT 23 Nov 79 LD

["Europe: Environmental Protection"--TASS headline]

[Text] Moscow, November 23, TASS--"Atomic stations [as received] represent no environmental hazard if they are correctly designed, built and used. This is the opinion of Soviet scientists", said Vladimir Kirillin, vice chairman of the USSR Council of Ministers, chairman of the State Committee for Science and Technology. He was speaking at a press conference here today.

"Our belief in the dependability of atomic power stations is based on observations over many years: Since the first power station was commissioned in Obninsk in 1954 and [as received] to this day we have not had a single radio activity excursion."

At present the Soviet Union has atomic power stations with a total capacity of ten million kilowatts. Next year this potential will be increased by four-five million, Kirillin said.

The problems of atomic power engineering were touched upon at the European Conference on Cooperation in Environmental Protection which was held at the initiative of Leonid Brezhnev. At this meeting, which was held in Geneva last week, Vladimir Kirillin was leading the Soviet delegation.

The Geneva conference, Kirillin said, outlined constructive avenues for international cooperation in preventing air pollution. On the order of the day are similar conference to be held to discuss the problems of protection of water courses, fauna and flora.

Among those present at the press conference was Yuriy Izrael, chairman of the Soviet Committee for Hydro-Meteorology and Environmental Control. He stressed that in the Soviet Union environmental protection is a concern of the state. In recent years a number of governmental laws and resolutions were passed in order to keep clean the rivers Volga and Ural, the Azov, Caspian and Black seas. One more law, on prevention of air pollution, is now being drafted.

At the same time Yuriy Izrael pointed out the environmental protection measures can be effective only in the conditions of international cooperation.

An important prerequisite for strengthening scientific ties, he said, is termination of the arms race, and strengthening of peace and security in Europe.

ECONOMICS AND ENVIRONMENTAL PROTECTION

Yerevan KOMMUNIST in Russian 19 Oct 79 p 4

[Article by E. Bunatyan, Head of the Department of Protection of Natural Resources of the Armenian Branch of Scientific Research Institute of Planning and Standards at COSPLAN, USSR Candidate of Economic Sciences]

[Text] Problems of rational use of natural resources, environmental protection and recycling of natural resources are some of the key problems at the present stage of development of society. The economic aspect of this problem was the subject of the Fourth All-Union School-Seminar, conducted in Tsakhkadzor by the USSR Academy of Sciences Scientific Council on Problems of the Biosphere (section of economics) jointly with the USSR Academy of Sciences Unified Commission, the USSR State Committee on Science and Technology, the USSR Academy of Sciences Central Economic Mathematical Institute and the Armenian branch of the Scientific Research Institute of Planning and Standards (NIIP N) at Gosplan, USSR.

In his welcoming address, head of the Department of Science and Technology of the Armenian SSR Gosplan, candidate of technical sciences A. Arababov noted that the basic purpose of the schools is the development of measures, directed to the preservation for future generations of natural resources, the ensurance of effective and rational use of them. In view of this, the choice of location of the seminar was no accident. The Armenian SSR, possessing complex geographical conditions and a developed ore-processing and chemical industry is one of the precarious republics in an ecological respect.

Doctor of Economic Sciences, Professor K. Gofman, TsEMI [USSR Academy of Sciences, Central Economics-Mathematics Institute] spoke in justification of the principles for determining economic effectiveness of environmental protection measures. He paid special attention to noise pollution, the damage from which according to calculations of ecologists of different countries of the world, is especially great.

Doctor of Economic Sciences Professor G. Khachatryan discussed the methodological principles of improvement and planning of measures for environmental protection under contemporary conditions of development of science and technology. These principles were developed by the Armenian branch of NIIPIN.

Addresses by head of the Department of Gosplan, USSR, V. Markov and deputy chief of the Armenian SSR, Gosplan SSR Department of Environmental Protection Yu. Abovyan described problems of planning environmental protection measures in light of the CPSU Central Committee and the USSR Council of Ministers' resolution "Concerning Improvement of Planning and Amplification of the Effect of the Economic Mechanism on the Increase of Effectiveness of Production and the Quality of Work."

Doctor of Economic Sciences Professor V. Shkatov (W. Isen /Scientific Research Institute of Prices/ Moscow) explained to seminar participants problems in the area of economic incentive during realization of environmental protection measures.

Candidates of economic sciences A. Gusev and O. Balatskiy discussed the problem of long-term prediction of change of the state of the environment under the effect of economic activity and methods of calculating economic loss from air pollution.

The seminar included presentation of more than 60 reports and addresses. The work of the school was restricted to three scientific trends, problems of territorial and sectoral management, planning and quality control of atmospheric air and water quality resources.

Participants of the seminar included more than 130 specialists in ecology from 57 Soviet cities, representing 83 scientific and public organizations involved in problems of environmental protection.

The participants visited many buildings and enterprises and became acquainted with the work of institutions and organizations working in environmental protection and also with basic design solutions on environmental protection measures of our republic.

/5-2791/

2791

CSO: 5000

STATE CONTROL OF PESTICIDE POLLUTION DISCUSSED

Kiev SIL'S'KI VISTI in Ukrainian 1 Nov 79 p 3

[Article by D. Imedashvili: "Which Pesticides are Needed"]

[Text] At first glance the picture is paradoxical: some scientists concern themselves with the problem of obtaining new chemical preparations for agricultural needs, and the efforts of others are directed towards decreasing their production, even their banning.

The higher the degree of chemicalization in agricultural production, the more effective it is. Unfortunately, most of the chemicals used today belong to toxic substances and therefore constitute a potential hazard to people. Among them, pesticides are particularly harmful since they circulate in the outside environment and, therefore, reach the human organism through food, water and air. Soviet hygienists, for example, detected in rain water a pesticide used only in Africa. Other negative attributes of pesticides are also well known as a result of which pesticides became the basic factors of immediate environment pollution.

Perhaps, poisonous chemicals should be completely prohibited?

"Unfortunately, we cannot as yet fight agricultural pests without chemical means," states the director of the Tbilisi Scientific Research Institute of Labor Hygiene and Occupational Diseases, Professor Vira Vashakidze. "Certainly there are preparations which are prohibited by medicine. But there are also those which can be used in concentrations which do not adversely affect the human organism. Therefore, in our country there exists strict state control of new pesticides introduced in agriculture. Recently, in our institute alone almost a thousand new preparations went through a toxicological-hygienic evaluation."

Observations of pesticide "behavior" over many years permitted Georgian scientists to make an interesting discovery. Often, low-toxicity unstable compounds are more toxic to the human organism than those with a higher toxicity. In fact, hygienists in Tbilisi were the first to study long-range effects of poison chemicals on the human organism.

"Work with pesticides is undertaken in two basic directions," continues Vira Vashakidze. "The first is a detailed study of new preparations, and the degree of their toxicity. Based on this, a final decision is made: Should this "good" be provided or prohibited, should the application of one or another chemical product be limited or not? Following our recommendations, the use of the American preparation "Sevin" was sharply restricted. It became apparent that this, at first glance, medium toxicity substance shortens the life span and can cause hereditary diseases. We also suggested that a substitute be found for the organic mercury seed mordant which negatively affects human nervous and endocrine systems.

During experiments recently, we were able to establish an up-to-now unknown principle: If microelements of mercury and manganese are present in an organism in amounts larger than physiological norms, birth of male warm-blooded individuals prevails: in the presence of chlorine atoms the female sex prevails. Therefore, pesticides which contain many of these substances should definitely be under control.

Through observation an interesting principle was established. It was shown that the percentage of coronary arterial function disturbances, nervous, endocrine and other diseases in women is markedly higher than in men who work with pesticides under the same conditions. On the basis of this, we recommended especially the shortening of the working day to six hours on hot-house farms, providing the workers with special food, and allowing only women workers over 25 to work with pesticides.

The significance of the Tbilisi institute scientific elaborations is tremendous.

9443

CSO: 5000

JOINT SOVIET-U.S. AEROSOL EXPERIMENT

Moscow IZVESTIYA in Russian 2 Oct /79 p 3

[Article entitled "Physicians of the Air Ocean"]

[Text] This year in the settlement of Abastumani, where the Georgian SSR Academy of Sciences astrophysical observatory is located, a joint Soviet-American experiment on the study of properties, processes of spreading and transformation of natural aerosol "AFAEKS-79" was conducted. The experiment was conducted within the framework of activity of a Soviet-American Commission on Collaboration in the area of environmental protection, created in 1972 in accordance with an intergovernmental agreement. Soviet participants in the experiment included scientists and specialists of the USSR State Committee on Hydrometeorology and Control of the Natural Environment, the USSR Academy of Sciences Institute of Physics of the Atmosphere, the Georgian Academy of Sciences and the Lithuanian Academy of Sciences and American participants included scientists from the Environmental Protection Agency and from several universities. Yu. Kazakov, adviser to the secretariat of the Soviet-American Commission on Collaboration in the area of environmental protection discusses the experiment.

Air pollution in towns, about which there is so much talk today, is caused by operation of industrial enterprises, thermal electric power stations, automobile transportation and, to a large extent, is due to aerosols -- tiny physico-chemical formations in the atmosphere. These particles, under the effect of temperature, sunlight and other natural factors, undergo different chemical transformations and, in the final analysis, may become a health hazard for man. Therefore, it is necessary, first of all, to determine the contemporary level (background) of pollution of the atmosphere and its tendency to future changes.

Aerosols and processes connected with them also exist in nature. Their study for subsequent comparison with aerosols which arise as a result of the activity of man became the basic task of the joint experiment.

Thus, for example, nitric oxides may be the result of a natural phenomenon (as the result of the vital activity of microorganisms) or may be the result of human activity (increases of emissions into the atmosphere from industrial enterprises or transportation). Therefore, in order to determine the state of the atmosphere, today it is necessary to know also the natural level of concentrations of nitric oxide. That is why regions damaged least by human activity was selected for the site of the experiment. The settlement of Abastumani is situated far from industrial centers and the natural purity of the air provided a good "background" for conducting the experiment.

According to the program, which was worked out at preliminary conferences of Soviet and American specialists, more than 80 different devices were delivered to Abastumani. A special feature was a laser probe of the atmosphere conducted on the initiative of the Soviet continent. The purpose was to monitor the optical state of the atmosphere in the zone of the experiment, to measure freons, etc..

It is important to emphasize that all of the equipment operated in a single complex for a single purpose. This provided complex results, synchronized in time. In order to obtain comparable results, the measurement procedures were agreed upon before hand. Thus, for measurements of absolute concentrations of ozone, an important component of the atmosphere which ensures formation of some aerosols, we used an ozone calibrator produced by the "Meloy" firm and also an ozone generator of the Lithuanian SSR Academy of Sciences Institute of Physics. Comparison showed high consequence of the measurement data.

The scientific purposes of the experiment also have great practical applicability. If we succeed in distinguishing and studying the mechanism of formation of aerosols and the processes of their spread and transformation we will be able to protect the air basin from pollution more effectively.

Preliminary results are available and the analysis of these results is continuing in laboratories of both countries. Data already obtained indicate the success of the experiment in the judgment of both the American and Soviet scientists.

Researchers in different specialties (chemists, physicists, geophysicists, meteorologists, physicians) participated in the experiment. I think that, judging by its scales and complexity of the problems solved "APAESKS-79" is one of the most important on such a plane in world practice. It is delightful to report that the Soviet and American scientists worked hand in hand as a single scientific collective.

Presently, Soviet-American collaboration is being undertaken in 40 joint projects, which embrace the widest range of problems of environmental protection and rational use of natural resources. The Seventh Session of the Joint Soviet-American Commission designated a large volume of joint studies, experiments, sea and land expeditions, meetings of experts and several joint technological developments (more than 100 joint measures in 1979). Results of a joint experiment on modelling processes of atmospheric pollution under a locality with complex relief, which experiment is now being conducted in the USA with participation of Soviet scientists is one of the air pollution control projects and promises to be quite interesting.

I think that fulfillment of the designated plans and programs of joint studies within the framework of Soviet-American collaboration is an important contribution to scientists and specialists in the solution of global environmental protection and improvement.

/5-2791/

2791

CSO: 5000

POLLUTION CONTROL MEASURES TAKEN

Baku BAKINSKIY RABOCHIY in Russian 19 Oct 79 p 3

[Article by L. Polonskiy entitled "Two Currents, Or the Story of the Struggle for Environmental Protection in Words and Deeds"]

[Text] **Anxious statements are heard from inhabitants of the settlement. Desperate telegrams arrive from different addresses of agricultural engineering bases. Operation of automobiles in these localities is being forbidden. Certificates, resolutions, memoranda are being compiled. Still polluted waters, being dislodged by spurts from manholes, discharge a stinking stream throughout the neighborhood. Trees and lawns perish, the road is destroyed, railroad sidings are flooded and huge puddles stand in yards.**

Health officers visiting Beyukshor on regular rounds record "In the area of the leather plant, more than 3000 cubic meters of polluted waste waters is formed in a day. These waters enter purification installations (septic tanks) along open gutters, where the sludge and overflow pass into perforated storage containers. At the time of the check, the containers were not being used and sections of the septic tank were completely filled with industrial wastes."

"Take timely measures." The Baku Tannery Association instructs the tannery to take appropriate measures. "Normalize the situation quickly, or else.." threaten the Ministry of Light Industry, the Republican Sanitation and Epidemiological Station, "Kaspvodnadzor," and the Committee on Environmental Protection." Answers and explanations by no means are reassuring and they, in their turn, call for assistance and cooperation. For some time there is the attempt to forget about the severity of the situation and then the alarm is sounded anew.

The problem of the inundation by waste waters of a rather large area in Beyukshor did not happen just recently, it has its own history. At the end of the 1950's and beginning of the 1960's, there began operation here

of a tannery, now head of the Baku Tannery Association. This tannery was built according to obsolete designs, providing for only the most primitive mechanical purification of waste waters. Their own reservoir, connected with the overall lines was put into operation for their discharge. At first, it was more or less suitable for its purpose. Then the Baku Tannery Association Administration became proprietor of this reservoir. Then, following the proverb "one today is better than two tomorrows" and expanding enterprises near at hand were added to it casually. The tanners did not protest; they pretended that they were unaware (in the dark). The overloaded reservoir could no longer handle the discharge from the tannery and the situation with which we began our story became commonplace.

Together with the flow of turbid waters, there gushed out effluent from a paper mill. There was no intention to eliminate the evil but adoption of measures, attempting to solve the problem presented an outward show of concern. Explanations, mutual accusations and arguments followed one after the other.

Without taking away the fault from the "Bakkanalizatsii" Administration, so recklessly handling the reservoir, we are trying to investigate the position taken by the Tannery Association and by the Ministry of Light Industry within whose jurisdiction it is.

From time immemorial dressing hide was an occupation which, while clearly necessary, is very unattractive and obviously a source of pollution of earth, water and atmosphere. Modern tannery production is also, alas, not distinguished by sterile purity and involves the use of many chemical components, most of which are extremely corrosive. If it is not carefully controlled, it can cause great damage to nature.

Even under the conditions (appropriate for their day) in which the reservoir mentioned operated, there would still be discharged into it extremely harmful caustic substances with subsequent effect on the environment. Analysis of wastes from waters of tanneries shows that they contain wastes, the emission of which is generally categorically inadmissible.

Mechanical purification installations were not designed for filtration of waters, participating in the industrial cycle, they just managed to retain only wool, flesh and chips. A biological purification complex, which was being used successfully in other enterprises of the sector was required. However, there was no thought of the construction of one in Bakkozhob'yedinenii and in the Ministry of Light Industry of the republic until 1975. Only at the beginning of the 10th Five-Year Plan did they raise the question of designing such installations. In one general order sent to the All-Union Ministry, together with Bakkozhob'yedinenii, was included a good

dozen of plants and factories. The letter in the name of the USSR Minister of Light Industry N.N. Tarasova said, in particular.

"Fines against the enterprises mentioned above for discharge of polluted waste waters in the course of the year exceeded 1 million rubles, which has a great effect upon the financial situation of the enterprises and harms their technical and economic indicators. On the other hand, the continuing pollution of the basin is inflicting irreparable environmental damage."

They acted on a naive and rather doubtful principle, that is, ask much and perhaps, some of it will be given. The All-Union Ministry said in reply that its design institutes were overloaded and the problem of development of technical documentation concerning purification installations will be solved for the enterprises in their turn. First of all they issued a plan for Baku Textile Combine imeni V.I. Lenin, although the situation there was not nearly as critical as that in the association of tanneries. Suddenly remembering, only after 2 years, the Ministry of Light Industry of the Republic reported in Moscow that an especially difficult situation existed in the Baku Tannery Association.

Finally development of a plan for a biological purification complex for the head tannery was written into the 1979 plan. The State Institute on Design For Leather Clothing and Fur Industry of the USSR Ministry of Light Industry participated. In the first days of January it turned to Baku for initial data. Thus, there arose the possibility of complete purification of discharges of harmful substances and reduction of the discharge volume by one-third, for part of the purified water would be recycled for industrial needs. However, the Tannery Association and the Republican Ministry were by no means completely relieved of the situation. The problem, as before, was far from being settled finally.

In order to install the biological purification project, there was required a free area one hectare in size. The designers asked for information about it. However, the head tannery, originally erected in an empty space, now had no unoccupied area at all. Completely ignoring the necessity for fundamental purification installations and not thinking at all about the future development of the enterprise, the Ministry of Light Industry of the republic located a new plant for footwear parts on land originally intended for the tannery. And, on supplementary area set aside by the association, they again "established" an object unrelated to the main plant.

Preliminary negotiations with the Main Architectural-Planning Administration of Baku Municipal Executive Council (held in 1977) were conducted with great pessimism. The official response confirmed this pessimism.

A document, dated 15 February 1979 and signed by the Baku deputy, chief of the administration, deputy chief architect R. Mekhtiyev, stated:

"Considering that analogous claims are being received from several other industrial entities, considering the shortage of open land and also the economic and town-building advisability, it is considered necessary to construct common purification installations for the group of enterprises. This problem will be considered at a special conference with the participation of all interested organizations. The time and place of the conference will be announced later."

Immediately, we shall note that after a lapse of 8 months, the promised conference was not convened and there was no news about the time and place of its convening. As was explained, there was no need for such delay.

During a meeting with a "Baku Worker" correspondent, deputy chief architect of the town Raif Gasanovich Mekhtiyev acknowledged that the conference was announced for the sake of form only. The seemingly authoritative answer showed a well veiled useless scrap of paper. "Judge a matter only after profound analysis of it," as the poet-philosopher Mirza-Shaf advised. Completely ignoring this wisdom, in the Main Architectural-Planning Administration, the Baku Municipal Executive Committee did not even bother to think whether it would be generally possible to create a common purification system for a group of enterprises of different sectors of industry which have completely different technologies. The specialist, contacted here, from the administration itself, resolutely rejected the thought of such a complex.

"Possibly in the distant future," he added in conclusion.

"Of course, we are absolutely in favor of environmental protection, and clean water, air and ground -- it is our first concern..." russed Raif Gasanovich Mekhtiyev.

Judging by his firm and energetic instructions, favorable and orderly solution of the problems with participation in the purification installations of the tannery was perfectly simple.

"Send a telephoned telegram to the Baku Tannery Association; go there at once and on the spot without delay hunt for and find a suitable plot," he directed the head of the department.

The deputy to the chief architect was very much opposed to appearing in a negative light in the newspaper. He understood how uncomfortable it would be to appear in the unpopular role of a man who was impeding cleaning up of the environment. It is to be hoped that this last order of R.Gasanovich

was not a theatrical gesture and cutting through the beaureaucratic obstacles in the administration they would be able to get some action on the matter.

It is impossible to get more from the section. You know the Moscow Design Institute was notified even in May.

"Our representative in Baku Main Architectural-Planning Administration ordered that ground for a site for purification installations for the tannery will not be allotted. We ask to receive in the Main Architectural-Planning Administration, a final response concerning the possibility of allotting the areas and, in case of refusal, to inform the institute and "Soyuzglavlegproeyek" about the exclusion of this project from the plan." I would like to make a point on this, coming to believe that everyone is coming to his senses. But a project, the construction of which is underway now at accelerated rates on the territory of the main tannery will cause problems. It should be operable next year, and its operation, if rapid and effective measures are not taken, will invite great disasters for the environment. This is a new shop, actually a separate plant for production of box-calf leather. Its waste waters (and the concentration of harmful substances in them) will be much higher than that in the presently operating main enterprises all of which are planned to be collected in the already overfilled reservoir. Meanwhile, there are no kind of purification installations for the box-calf leather production and there are not even rough drafts for one.

They are constructing this production higgledy-piggledy; without approved, qualified designs and without solid sources of financing. An acute necessity for its starting arose and it will not disappear. But everyone is to blame -- the unwillingness of other departments to solve the question at hand in a timely manner, attempts under any pretext to avoid fulfillment of the decisions made. Eight years ago the USSR Ministry of Light Industry was obliged to construct the box-calf leather plant in Sal'yanakh. For its installation on the outskirts of the town, plots were set aside. Designers proposed technical-economic substantiation and the volume of capital investments were determined. The new plant was constructed in the place of the old Baku plant, which was razed in connection with the expansion and renovation of the machine construction plant imeni Lieutenant Shmidt. However, the central board of the All-Union Ministry complicated the matter and taking a totally arbitrary position, excluded the plant from the plan. In the Ministry of Light Industry of the republic, there was relatively easy resignation to this and the members appeared to stop pressing the matter. The end was that it now came into very urgent order to organize production of box-calf leather on the crowded territory of the tannery.

Talking with the first deputy minister of Light Industry of the SSR Azerbaijan, T. Guseynova, deputy minister Yu. Stepanovskiy, a person became convinced of the fact that they both are not acting efficiently and clearly in order to eliminate the environmentally dangerous effects of the Baku Tannery Association enterprises. Errors and miscalculations committed in past years when Guseynova and Stepanovskiy were not directors of the ministry, naturally, are not their responsibility, but today, they display sloth and lack of initiative. A non-specific order signed by T. Guseynova is in existence. It was compiled after discussion in May of this year by colleagues of the ministry of the question "Supplemental Measures for Improving Environmental Protection and Use of Natural Resources." This order states:

"The purification installations of the Baku Tannery Association function poorly and permit significant excess of permissible levels of pollution. Therefore, we announce that organization of this struggle against this evil, according to the enterprise must be performed by enterprises which are the source of this environmental pollution. It must organize in established order structural subdivisions for environmental protection and rational use of the natural resources within the limits of established numbers and salary of the administrative management personnel."

But, who really bears the responsibility for environmental protection? Basically, it is an additional burden, on plant and factory engineers for safety technology. The Baku Tannery Association (director G. Mamedaliyev) generally considers it is unnecessary to react to this order.

The problems connected with the elimination of environmental pollution by tannery enterprises of Baku were woven into a tight knot. They are not being cut as was the Gordian knot; it is not something you do with one flourish of a pen. They require a thoughtful, interested approach, to deal with the accumulating of many years and the deepening, complicating shift of responsibility from one shoulder to another and frank and masked procrastination. Stopping the flow of office papers, which only snarls the problem is required without fearing expenditures -- expenditures of cheap energy and materials and a real earnest attempt to normalize the situation. Remember that nature can scarcely be protected by loud and beautiful words, protection of it requires action. Active action. In the final analysis, we are only protecting ourselves.

[5-2791]

2791

CSO: 5000

SEWAGE TREATMENT SCHEME BASED ON PURIFICATION UNITS

Moscow IZVESTIYA in Russian 1 Nov 79 p 1

[Article by S. Tsikora, Kiev correspondent]

[Text] Scientists of the Ukrainian Academy of Sciences have proposed a fundamentally new approach to the purification of drinking water and the recycling and repeated use of production-process and industrial waste water.

The new approach to the problem was made possible by an original theory developed by L. Kul'skiy, an academician of the Ukrainian Academy of Sciences. Impurities capable of polluting water were classified according to their so-called phase dispersion state and divided into a small number of groups. Standard purification units were developed for the removal of each group of impurities from water. Regardless of the complexity of the industrial effluent with respect to components, the water can be made fit for use again and its transparent sparkle can be restored by passing it through the standard types of purification units, arranged in various sequences depending on the types of impurities.

Purification apparatus and methods that have made possible the block-type design of water purification installations were developed at the Institute of Colloid Chemistry and Water Chemistry of the Ukrainian Academy of Sciences, where L. Kul'skiy heads a department. The purification apparatus and methods were tested in industrial conditions at water supply stations and industrial enterprises. They gave the best possible account of themselves. The standard type purification units make it possible to discontinue the designing and construction of individually developed sewage-treatment works.

CSO: 5000

RYAZAN PARTY CHIEF COMMENTS ON WATER PROTECTION MEASURES

Moscow SOVETSKAYA ROSSIYA in Russian 25 Sep 79 p 2

[Interview with the first secretary of the Ryazan' Obkom of the CPSU, N.S. Priyetzhev]

[Text] Water today has become a very important raw material in determining the development of any given region's productive forces.

Ryazanskaya Oblast is one of the areas of the Russian Non Chernozem which is best supplied with water. Because of its abundance of rivers and lakes the people have called it the "blue-eyed" region. The Oka runs for nearly 500 kilometers through this oblast. The other rivers which cross the land of ancient Ryazan' are not as powerful as the Oka but certainly rival it in beauty, and they remind us of the history of Rus' and its formation. They draw strength from the smaller rivers and streams which number at least 900 in the oblast. And they in turn are alive with innumerable lakes and marshes. The oblast is rich in rivers and other bodies of water, but, nonetheless, the residents of certain smaller regions experience water shortages at certain hours. What is this, a symptom of a water crisis?

This question was the starting point for our conversation about the problems of water resource use and protection with the first secretary of the Ryazan' Obkom of the CPSU, N.S. Priyetzhev.

[Answer] "Crisis is too strong a word," noted Nikolay Semenovich. Aridity does not threaten us. But there are definitely problems with interruptions in the water supply. The city norm is, after all, 600 liters a day at present. Sixty vedros! In former times this amount of water would have been enough for an entire family for a week. But water has become an integral feature of our daily life and, if you will, even a measure of our standard of living.

The oblast has recently completed a long term project on the assessment of its rivers. The work has made it possible to determine on a strictly scientific basis how much water can be taken from each body of water without harming it, causing damage to its inhabitants or to the environment. When Leonid Il'ich Brezhnev was recently in Dnepropetrovsk, he said: "Keeping the land, water and air clean constitutes a national goal. There was a time when every effort was made to put a plant into operation as soon as possible and to have it start producing at any cost. Today, however, it must be built without harming nature. And old enterprises must be renovated to ensure that they do not damage the environment." This is the party line.

In the last several years the oblast has spent about 40 million rubles on water protection measures. Our enterprises have started to make widespread use of water recycling systems. Most of the water which is discharged undergoes preliminary treatment.

[Question] Nonetheless, a certain amount of it does not pass through filters...

[Answer] Unfortunately, this is so. What can be done? This unfiltered water comes from old distilleries, starch and dairy plants, and from the effluent of certain regional centers. The ministries responsible for these sectors unwillingly release the funds for the construction of treatment facilities for old plants. And we, the oblast committee of the party and the oblispolkom, have not done everything we could either. We need to act more energetically and persistently. It has now been accepted as a rule that not one new plant or animal raising complex shall be put into operation without adequate treatment facilities.

[Question] Committees for the protection of the Volga and the Don have been established following the example of the Committee for the Desna. Perhaps it would be a good idea to establish a special committee for the Oka? There is good reason why they say the Oka is the Volga's right hand. And all the more because, as I have heard, there are plans to divert water from the Oka into the Oskol. And will the implementation of this plan not weaken the right hand of the Volga?

[Answer] As is well known, the Oka originates in Orlovskaya Oblast. It flows, as is also well known, through Kaluzhskaya, Tul'skaya, Moscow, Ryazanskaya, Vladimirskaya and Gor'kovskaya oblasts. In short, it has many masters. And an inter-oblast committee, similar to the Desna committee, would make it possible to coordinate in a more specific manner the work to protect the Oka. The Oka-Don-Oskol system was meant to supply water to the Oskol'skiy rayon of the Kursk magnetic anomaly, which is a very important area for the national economy. This system will irrigate the "dry" regions of our oblast. And in approaching from this position, we must display an attitude of approval toward this project. In order to prevent a lowering of the water level in the Oka, plans call for water to be fed into it from the Upper Volga

through the Moscow River. But here is where the doubts begin. In the first place, there are no precedents for the diversion of water in these amounts. In the second place, man is always drawn to excessive dependence. And in this case the Oka will be doubly dependent--first on the Volga and then on the Moscow River. We, of course, would prefer to see the Oka left in peace.

[Question] Nikolay Semenovich, you were talking about an assessment of the rivers, and this report calls for more construction of water-regulating dams. Having regulated the small rivers, we could help the Oka in this way, too.

[Answer] Definitely. In general, it is difficult to overestimate the role of water-regulating dams. They create artificial bodies of water, and where there is water there is life. A body of water represents irrigation of the fields, and a barrier to prevent the formation of ravines; it also constitutes an opportunity to raise fish, breed birds; and it means crops for the countryside and recreational opportunities for people. I am in complete agreement with the authors of a letter whom Lipetskaya Oblast which was printed recently in SOVETSKAYA ROSSIYA: it is definitely time to take a careful approach to the smaller rivers and to ensure that they have a wealth of life. This is a question not only of economics, it is also a profoundly social and political question as well as a national-patriotic one. In recent years 38 water reservoirs have been formed with a total water surface area of about 4,000 hectares. In late 1977 the oblispolkom adopted a special resolution "Concerning the Comprehensive Use and Protection of the Water Resources of Small Rivers in Ryazanskaya Oblast." It calls for the construction--before the end of 1980 of 68 water regulating dams on small rivers and ravines.

[Question] Our newspaper, having told Ryazan' residents about this resolution, correctly noted that the dams are being built very slowly.

[Answer] It is true that they are being built very slowly. Although the strength of the water management organizations in our oblast has doubled in the last three years, it is still inadequate. There have been particularly long delays in the construction of dams in the southern and least forested regions, which means the "driest" regions of the oblast.

[Question] Maybe a community-oriented approach to construction is needed. The peasants used to build their own mills! And their equipment consisted of a cart, ax and spade.

[Answer] Yes, but there were so many people in the countryside. With that number of people the earth could be carried to the millpond dam in pockets.

But it should not be forgotten that the mills were built primarily for the grinding of grain. Without them the peasants would have perished. But today, too, we favor the construction of dams on small rivers and streams through the efforts of the farms themselves. It is important that they be built properly according to plans. And it is even better if they are built by masters of the craft, by specialists. There are bridge builders and road builders. Why should there not be builders of small dams? And it would be a good idea for Glavnechernozemvodstroy /expansion unknown/ to create for this purpose a specialized subdivision for the entire Russian Non Chernozem area.

[Question] You were correct in noting that "the least forested means the 'driest.'" People are right when they say that the forest is a kind of umbrella which protects brooks and streams from the sun, and from drying out. That is, a large amount of water cannot be retained without the forest. Ryazanskaya Oblast, however, is lucky in its forests; it has Meshchera...

[Question] Yes, Meshchera is unique in its beauty and the wealth of its animal and plant life. And in this sense it is not only our oblast which is lucky. Of the Meshchera's 30,000 square kilometers, a significant amount is located in Moscow and Vladimirskaya oblasts. The Meshchera has been aptly called the filter of the Moscow area because of its natural properties.

[Answer] That was strongly put, and imposes a high responsibility... Nikolay Semenovitch, we hear more and more often that the land improvement construction which is being carried out in Meshchera threatens not only the water balance of the Meshchera lowlands but also its entire ecological balance. How fair is this?

[Question] With major land improvement measures such as those being carried out in Meshchera, man substantially influences nature: he drains swampland, clears out the undergrowth and collects water for irrigation. This interference inevitably changes the landscape and leads to a change in the surface river flow and to replacement of wild vegetation with cultivated vegetation.

Could we have avoided our intervention in the Meshchera? It seems to me that we could not. The agricultural production of tens of kolkhoz's and sovkhoz's takes place here, and thousands of people live here. As a rule, these were poor farms. And they were poor because the land was poor. And people are the same everywhere. Each person tries to obtain the maximum yield from his labor, tries to live well and has the same right as anyone else to do so. And is it not our job to help him?

To go on. You know, I am sure, that land improvement work was carried out in the Meshchera lowlands in earlier times, as long ago as the first half of the previous century. And this was quite substantial work, although it was, of course, on a different level of engineering. Time has had its effect. The land improvement systems fell into disrepair and they become a hindrance rather than a help to modern grain growers.

In the Meshchera the efforts of the land improvement specialists were directed as a first priority to restoring these old arable lands. Here is an example. The "Sovka" facility, which is being built in the Klepikovskiy Rayon, is today considered to be the largest. Eighty thousand hectares will be improved here, and more than 5,000 of them are in lands that were previously utilized.

With this work being carried out on such a scale, we are, of course, trying to ensure in the strictest possible manner that the land reclamation does not cause harm to the environment and does not change for the worse this uniquely beautiful landscape. Once again I emphasize: it is not dense forests capable of holding water and influencing the microclimate which are being drained, but rather land that is potentially arable, pasture land and land for haying located near settled areas along the Ryazan' Kasimov highway. The Pra River, the main water intake point, will remain in its original state. Protective dikes are being built for this purpose. A system is being introduced for the dual regulation of the water and air conditions. For all matters related to the protection of nature we have a good advisor and consultant, the Meshchera branch of the All-Union Scientific-Research Institute of Hydrotechnology and Land Reclamation; in the future we shall continue to rely on the constant help of this institute. It is simply impossible to undertake work of this kind in this day and age without scientific help.

[Question] Incidentally, the July issue of the magazine GIDROTEKHNIKA AND MELIORATSIYA contained a curious article: "The Land Reclamation System of the Meshchera." The author, a chief specialist at Mosgiprovdokhoz [expansion unknown], writes that a scheme has been developed for the comprehensive utilization of the Meshchera and that in the future the Meshchera lowlands will become an area of intensive agriculture. But we have been talking about the Meshchera as a pearl of nature, and as a filter for the districts near Moscow. There is something not quite right here...

[Answer] A scheme for the comprehensive utilization and protection--note that I said the protection--of water and land resources of the Meshchera lowlands was in fact developed not long ago. The development of the Meshchera zone will make it possible to obtain an additional 328,000 tons of grain, 840,000 tons of potatoes, 214,000 tons of vegetables, 920,000 tons of milk and 50,000 tons of meat; this amounts to almost as much as all of Ryazanskaya Oblast produces at present.

I would like to take note of the following: if the Meshchera is not dealt with, it will decay in the natural way. Many of its lakes have become overgrown, and many streams have filled up with mud. These bodies of water will flourish when they are intensively used and cared for. And the scheme calls for this kind of work to be carried out. Nonetheless, the scheme assigns a rather modest role to the protection of nature. A few phrases in all, and one cannot judge on the basis of these few phrases how well the ecological balance will be maintained in the Meshchera. No profound scientific prognoses concerning the consequences of the proposed active intervention by man in the natural surroundings of the Meshchera have been presented.

[Question] But can work really be started when there is no precise certainty as to where this interference will lead?

[Answer] It is not a simple matter to provide a long-range forecast, but, of course, it is extremely necessary under the current conditions. In my opinion it would be good to create in the Non Chernozem area a scientific-research center which would study and recommend ways to protect the environment. And it is not only we who need such an institute; other Central Russian oblasts have conditions similar to those which we have in Ryazanskaya Oblast.

Consideration should also be given to the creation of a national park in the Meshchera. People are talking more and more persistently about this. And this is right. But for some reason they refer only to the United States of America. They talk as though parks were some kind of foreign discovery. But listen to what was said about national parks in a Leninist decree as long ago as 1921: "Larger natural areas which are noted for their features are declared to be reserves and national parks... The lands of the national parks and reserves cannot be worked nor can their natural resources be developed without permission from the People's Commissariat...." (From a decree entitled "Concerning the Protection of Natural Monuments, Gardens and Parks"). As for the Meshchera in particular, the above mentioned scheme for its utilization considers two alternatives for a national park with a total area of 35,000 to 40,000 hectares.

[Question] Some 30,000 square kilometers? Speaking candidly, that is an extremely modest size. Maybe the the broad, scientific community should be acquainted with the scheme for the development and protection of the Meshchera? The question should be solved peacefully...

[Question] Yes, public opinion always contributes to the adoption of the most correct decisions. The problems of developing and utilizing the Meshchera do not have just local significance or significance just for Ryazanskaya and Vladimirskaya oblasts; they have instead national significance. And it would not be a bad idea if SOVETSKAYA ROSSIYA acquainted its readers with this scheme.

There is a need for the oblast to have a composite, comprehensive plan for the protection of nature. Much has already been done to prepare such a plan. But a comprehensive plan will require and has already required material funding. We think that it is time to stop the extraction of peat in the Meshchera. Incidentally, a wide-gauge railway has been laid here instead of a narrow gauge one. It is time for the RSFSR Ministry of the Fuel Industry to seriously undertake the recultivation of the peat bogs which have been worked out. It has not yet allotted any funds for this purpose, nor has it drawn up any plans to restore the lands. In order to prevent bodies of water from being polluted, portable pumping stations with internal combustion engines should be replaced with electric ones.

It seems to me that today it is impossible to carry out management functions intelligently without knowledge of the foundations of the correct use of nature. For this reason we need to increase the number of students in VUZ's which train ecologists. And upon graduation these people should be sent as a first priority to planning institutes. It is dangerous when plans are formulated by specialists who do not understand the natural sciences.

Every one of us who lives on the Earth must not, does not have the right to forget that the natural surroundings of our Fatherland is the holy of holies and the Mother to all life, as well as a great national treasure. And no references to how busy we are with other--truly important and essential problems--nor pleading a lack of knowledge of the laws concerning environmental protection or of poor training can justify even the smallest injury which may be inflicted on nature. Everything around us is yours. That means it is ours, mine. Everything around is yours, which means it must be protected and increased by you.

8543

CSO: 5000

TREATMENT FACILITIES FOR A RECYCLED WATER SUPPLY SYSTEM

Moscow PROMYSHLENNOYE STROITEL'STVO in Russian No 8, 1979 pp 13-14

[Article by B.M. Bubnov, A.K. Savchenko, engineers at the Siberian State Planning Institute for Metallurgical Plants, and by I.M. Ushakov, professor at the Siberian Metallurgical Institute]

[Text] The division for the thermal treatment of rails at the renovated rail-structural unit of the Kuznetsk Metallurgical Combine was planned and built to operate without discharging production wastes into an open body of water (the basin of the Tomi River, in this case). Sibgiprometz [Siberian State Planning Institute for Metallurgical Plants] solved problem of how to make rational use of water in production; gross water consumption was calculated at $0,8 \text{ m}^3$ per ton of output.

Construction of the thermal division required accelerated preparation and start up for a majority of the facilities for the recycling system of rolling production at the Kuznetsk Metallurgical Combine because the water supply and sewer system for the thermal division are an integral part of the over all water system of the rolling units. In addition, construction of the division involved the removal of a large number of existing external pipelines, and this could only be done by organizing the system for recycled water supply. Due to a number of technical difficulties the construction of a radial settling tank was possible only in close conjunction and close alignment with other facilities for the secondary treatment of effluent from the rolling production unit.

The system for a recycled water supply for the rolling units was developed in its original form by Sibgiprometz in 1958-1962. Standard horizontal settling tanks of the kind designed by Giprometz [State All-Union Institute for the Planning of Metallurgical Plants] were stipulated for removing scale and oil from the waste water; the tanks were designed for the treatment of $100-150 \text{ m}^3/\text{hour}$ in one section.

The renovation plan called for 44 sections arranged in two levels per site; six sections had been built by the start of 1978.

The settling tanks are cleaned out during the warmer time of the year by using a railway or automotive grab crane. The oil which has emerged from the surface of the water is collected by slotted, rotating pipes and is removed to a storage pit.

The following factors lead to a reduction in the useful volume and the build up of sludge in the settling tank: flaws in the equipment for the intake, distribution and collection of the water, the jet action of the flows and the formation of dead zones, the ineffectiveness of the oil-catching equipment and the irregular and inadequate removal of sludge; as a result of all this, the water entering the recycled water supply system has a high slag content, which makes it unsuitable for re-use.

Slag from the settling tanks has a moisture content of 30-35 percent and is removed by truck to enclosed dumps for natural dehydration.

A large number of the main and auxiliary production units which make up the rolling shops of the Kuznetsk Metallurgical Combine require water of high quality, and when these shops are shifted to a recycled water supply, the problem of deep treatment of the waste water must be solved.

According to current norms for the re-use of contaminated water, it is essential to obtain--after final treatment--water with a slag content that does not exceed 40-80 mg/l and an oil content which does not exceed 10-30 mg/l.¹ Further renovation of the rolling equipment raises the water quality requirement to 5-10 mg/l for suspended substances and to 1-5 mg/l for oil.

During the planning of the thermal divisions, the future volume and complexity of the construction of the water system facilities was taken into account once the sequence of construction and the start up of facilities involving the minimum of capital expenditures was established. In this area Sibgiprom and the Kuznetsk Metallurgical Combine faced an extremely complex task as a result of the following requirements.

After construction had already started on the recycled water supply system for the rolling units, the operating requirements in the main production unit changed: the water quality requirements were raised, and water consumption increased. At the same time it was essential to take measures to protect the environment from pollution.

Plans called for construction of the facilities to take place under the difficult and constricted conditions of the functioning plant, where the density of the development in the construction area at various sectors reached 90 percent, while the difference in the levels of design amounted to 14.55 m.

The treatment facilities for the recycled water supply system are located on an artificial site with a ground water level of +0.1 m from the planned level. All this required that new technical decisions had to be made with consideration given to the latest achievements of science and technology and to the experience acquired in water system management in metallurgical enterprises.

The fundamental technical decisions which make it possible to ensure high quality in the recycled water supply, amount to the following.

The horizontal sectional settling tanks, which were designed to treat 7,000 m³/hour of dirty water, were replaced by three radial tanks (with a diameter of 30 m) designed by the VNIPIhermetenergo-ochistka Institute. The distinctive feature of these settling tanks is the flocculation chamber located in the center of the tank; dirty water is delivered centrifugally to the chamber, and when necessary, coagulants can be added.

Agitation of the waste water causes flocculation of the suspended matter and this leads to rapid removal of this matter from the water.

According to the plans formulated by the Donetsk branch of the VNIPIhermetenergoochistka Institute, the water is subjected to magnetic treatment before it enters the radial settling tanks; this treatment accelerates substantially the process of precipitation by the suspended matter. The combination of the reagent magnetic coagulation with the flocculation ensures thorough removal of suspended substances and oils from the waste water.

By taking into account the restricted conditions in the existing rolling units which made it impossible to have primary settling tanks of the necessary size, the plan called for an additional three-section horizontal settling tank to trap large-sized slag.

This facility was designed to accept waste water, which would spend 10 minutes here before moving into the radial settling tanks; this would ensure that the radial settling tanks and the pumps for the removal of the slag from the tanks would operate reliably in the future.

The experience of the Magnitogorsk Metallurgical Combine was used to develop a new scheme to prepare the slag for use in the production of agglomerate without the need to remove it to a storage tank for natural dehydration.

The sediment from the radial settling tanks is first accumulated in a two-sectional compactor and then in drainage bunkers. The dehydrated sediment will be transported by rail to the Abakurov Enriching and Agglomeration factory.

The three-sectional horizontal settling tank, where the slag coming from the various units is trapped, and the bunkers for the dehydration of the slag are serviced by a gantry bucket crane, which ensures the steady shipment of the dehydrated slag for reprocessing.

The main technical decisions which were worked out during the planning, and implemented during the construction of the treatment facilities for a recycled water supply system for the rolling units of the Kuznetsk Metallurgical Combine, provide with a high rate of reliability the return to production of 61 million m³ per year of waste water, which for decades polluted the Tomi River basin. Every year about 150,000 tons of slag will be extracted from this effluent and returned to metallurgical production. In addition, nearly 1,500 tons of oil will be re-used.

The economic benefit derived from this entire set of measures will amount to more than 15 million rubles per year.

FOOTNOTES

1. "Ukazaniya i normy tekhnologicheskogo proyektirovaniya i tekhniko-ekonomicheskkiye pokazateli energokhozyaystva predpriyatiy chernoy metallurgii" [Instructions and Norms for the Technological Planning and the Technical-Economic Indicators of Energy Management by Ferrous Metallurgy Enterprises], Vol 12. Water Management of the USSR Ministry of Ferrous Metallurgy, Glavproyekt, 1973.
2. G.N. Krasavtsev, "Treatment of Waste Water from Rolling Production Units Abroad. A survey of information by the Chermetinformatsiya Institute, Series 22, No 1, 1974.
3. G.M. Levin, "Zashchita vodoyemov ot zagryazneniy stochnymi vodami predpriyatiy chernoy metallurgii" [Protecting Bodies of Water from Polluted Waste Water from Ferrous Metallurgy Enterprises], Moscow, Metallurgiya, 1978.

COPYRIGHT: Miryizdat, 1979

1941

000: 100

NATURAL GAS AS AUTOMOTIVE FUEL

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 28 Sep 79 p 4

[Article by A. Bondarenko, Engineer of the Central Installation and Repair Laboratory of the "KazgazstroyMontazh" Trust]

[Text] Automobile exhausts constitute a significant part of the harmful emissions being discharged into the atmosphere. Representatives of control agencies, in some cases, are in despair: air, taken in a sample at an area of an industrial enterprise or near it is often purer than, let us say, air in the center of a town. This is due to the ever increasing number of automobiles in use. So it is no accident that, in our republic, great attention is being given to removing automobile exhausts from the air. One such measure is the change of some automobiles to gas fuel.

Precisely, for this purpose, in the northwestern part of the town of Alma-Ata, near the "Severhoye kol'tso" super-highway Kazakhstan's first station for refueling automobiles with bottles of compressed gas was constructed. Builders of SMU-1 [Construction and Installation Administration] of the "KazgazstroyMontazh" trust of the Kazak SSR Council of Ministers of the Main Administration of the Gas Economy coped successfully with their obligations and brought it into operation in the designated period.

The station is designed for refueling 600 automobiles in a day. Its daily productivity is 120 cubic meters or 61 tons of compressed gas.

The capacity of the station is 20,000 tons of gas in a year, however, this is not enough and therefore the "Kazgiprogaz" Institute has developed a plan for a new "gas distributor" of greater capacity which is to be constructed outside the city limits -- in the region of the village of Aksenger.

What is the advantage of gas over gasoline?

First, the percent content of carbon of exhaust gas in bottled gas automobiles is much lower, says chief engineer of the motor depot of "Alma-ataoblغاز" trust, Yu.Sh. Ruziyev. Second, fuel consumption during use of compressed gas in comparison with gasoline is reduced by 40-50 percent and third, engine wear is reduced significantly.

Now many automobile enterprises of the town of Alma-Ata have begun to re-equip automobiles to operate on compressed gas. However, there are some very complex problems associated with this. In the opinion of specialists, the change from a gasoline engine to gas fuel is not especially difficult if, of course, you do not replace the head of the engine block. However, during this, the engine power is reduced by 10-12 percent. The rate of combustion of gas fuel is lower than the rate of combustion of liquid fuel.

The next problem. Automobile enterprises of the republic receive sets of gas apparatus together with changed heads of the block, intended for operation on gas, from the Ryazan plant.

However, notes chief of the industrial-technical administration of the Ministry of Automobile Transportation of the republic N.A. Tashuta, these sets of gas apparatus frequently are incomplete, which greatly delays the rebuilding of the engine. We have refitted 300 motor vehicles but not completely and only 238 are in operational condition.

Chief engineer of motor vehicle combine No.3, V.G. Sadchikov, views the situation with optimism.

Presently, in our organization we have already reequipped 91 automobiles. Soon we will receive another 51 sets. We generally prefer a method proposed by our efficiency experts. It permits the automobile to operate on both gas and on gasoline, produces no appreciable loss of engine power and does not pollute the atmosphere. Experiments conducted at the beginning of the year at the KAZNIPAT [expansion unknown] Institute indicated that, an engine operating on gas at a small number of revolutions produces 40 times less harmful emissions than an engine operating on gasoline. At higher speeds, there is still a 10-fold difference between the two. The automobile combine has solved the problem of requalifying the staff of drivers. A course involving 40-hour programs has been completed by 500 drivers.

The transition to gas fuel costs a considerable amount, up to 900 rubles per vehicle, on the average. These expenditures, of course are not small but they more than repay us by the savings of scarce fuel and, what is most important, this assists in cleaning up the Alma-Ata Air Basin.

2791
CSU: 5000

REDUCTION OF AIR POLLUTION BY MOTOR VEHICLES

Minsk PROMYSHLENNOST' BELORUSSII in Russian No 8, Aug 79 pp 67-68

[Article by V. Pavlovskaya, staff member of the Scientific Research Institute of Economics and Economic-Mathematical Methods of Planning attached to the Belorussian SSR Gosplan: "The Motor Vehicle: Friend or Foe?"]

[Text] The most effective way of preventing the pollution of the air basin of cities by the exhaust of motor transport is its conversion to electric drive. Much has already been done in this direction. Electric vans produced by the Yerevan Motor Vehicle Plant will be used, for example, in Moscow for catering to the 1980 Olympics. One battery charge is sufficient for a trip of 45 km. Pilot batches of electric cars for intraurban traffic with a carrying capacity of up to one-half a ton are also being manufactured. In the convenience and simplicity of driving they are considerably superior to motor vehicles with internal combustion engines.

However, the extensive use of electric cars in the national economy for the present is being checked by the relatively high cost of their maintenance and the short traveling distance without charging. That is why in recent times the policy was adopted of developing a motor vehicle with a "clean" engine. It is planned, in particular, to increase the production of bottled-gas driven vehicles, which are designed mainly for catering to intraurban traffic. Motor vehicles operating on liquified gas exhaust into the air one-third to one-quarter as many toxic substances as their colleagues which run on gasoline. Moreover, bottled-gas driven motor vehicles do not require an antiknock compound, as which a lead tetraethyl solution, which contains a mixture of tetraethyl lead and ethyl bromide, serves. In Moscow several thousand motor vehicles are already running on gas. By 1980 it is proposed to convert to this fuel a portion of the motor transport of another 13 cities of the country.

In our republic measures are also being elaborated on the conversion of buses and a portion of the passenger cars, which operate within Minsk, to liquified gas. The possibility of using unleaded gasoline is being studied.

The conversion of motor transport to new types of fuel and power is a matter not so much of the distant future, but nevertheless of the future. During

the present and next five-year plans the monitoring of the technical condition of motor vehicle engines and the prohibition of the placement on line of vehicles with a higher than usual content of harmful substances in the exhaust will be the main measure which is conducive to reducing the level of pollution from motor transport. The checks made periodically by the State Motor Vehicle Inspectorate show that the content of carbon monoxide in exhaust is 1.6-fold greater than the standard content. The content of other harmful substances is also higher than usual. The reason is the technical disrepair of vehicles.

For a later period (by 1985) in order to reduce pollution it is planned to install on motor vehicles catalytic converters and afterburners. They will make it possible to reduce the toxicity by 15 percent and decrease the absolute discharges by 90 percent.

In the USSR All-Union State Standard 16533-70 has been drafted, which specifies the maximum permissible content of carbon monoxide in exhaust, which is equal to 4.5 percent while the engine is idling. Work is being carried out on the preparation of standards on the maximum permissible content of nitrous oxides, aldehydes and carcinogens. Preparations are being made for the adoption of standards on the smokiness of diesel engines.

In order to regularly monitor the observance of the established standards in Minsk and other cities of the republic it is planned to set up 50 mobile centers to check the toxicity of exhaust, to organize at all motor vehicle service stations the check of vehicles of individual owners for the content of harmful substances in exhaust, to install at all large motor transport managements stations and lines for diagnosing the technical condition of motor vehicles. In this case it will be necessary to supply the motor transport managements with the necessary equipment, instruments and accessories for repairing and adjusting the ignition and feed systems of engines and for monitoring the content of harmful substances in the exhaust. The cost of one station is approximately 30,000 rubles. The performance of the high quality repair, adjustment and tuning of engines will make it possible to reduce the discharges of pollutants into the air by 50-60 percent and at the same time to decrease fuel consumption by 2-5 percent.

Since the highest air pollution is observed on heavily traveled sections of streets, at intersections, on grades and in zones of unbroken development it is necessary to revise periodically the flows of motor transport traffic in order to shorten the stops at intersections, to reduce the flows on narrow streets and thoroughfares with dense housing construction, as well as in the vicinity of hospitals and children's institutions. The drafting of long-range plans of the development of the traffic of all types of motor transport in cities with allowance made for the need to improve the air basin has begun in the republic. The introduction of the automation of the regulation of motor vehicle traffic, which will make it possible to make the movement of transport nonstop, will promote the decrease of pollution.

The rational layout of new streets and roads, the widening and renovation of old ones, the construction of high-speed nonintersecting highways and parallel streets and the use of underground tunnels as parking places and garages belong to the architectural and layout measures which are conducive to the reduction of pollution.

At present in the cities of the republic the density of the transportation network per km^2 of territory is five-elevenths of the recommended standards, which attests to the great saturation of the main streets and roads by transport. Therefore, during the current five-year plan considerable capital investments in road construction and civic improvements are provided for. The improvement of the architectural and layout structure of cities also includes measures on transferring a number of motor transport managements, motor columns and depots and filling stations beyond the city boundaries and landscaping streets and roads. All these measures will make it possible to make the air of our cities cleaner and the motor vehicle a friend of man.

COPYRIGHT: "Promyshlennost' Belorussii", 1979

7807

CSO: 5000

EDITORIAL CHIDES VINITSKIY CHEMICAL FACTORY FOR AIR POLLUTION

Kiev PRAVDA UKRAINY in Russian 29 Sep /9, p 1

[Editorial entitled "Man and Nature"]

[Text] The beauty of our Fatherland is unique. How singular the beautiful fascinating nook in the broad expanses of the Ukraine! Everywhere, in the feather-grass steppes of the Don Basin, along the quiet streams of Poltavshchina and in the forests of Chernigovshchina, man finds precious places for himself.

In communicating with nature, we obtain not only esthetic enjoyment; a flow of cheerfulness, energy and spiritual solitude comes to a man from such a meeting. "I prefer to take my soul into the forest," writes a young coal cutter Vladimir Sharshakov of Gorlovska mine imeni Kalinina, "returning home is like returning from childhood; the reinvigoration is like drinking living water taken from a pure vessel. There are many such letters to the editor of "Ukraine Pravda."

The Soviet peoples wisely are attempting to solve the most important problem (the use of natural resources and environmental protection) in the epoch of scientific and technical progress. The man who plants a tree deserves a word of thanks. Defiling a forest glade deserves angry censure. Poachers, to whom nothing is sacred, are intolerable to us. The letters demand more severe punishment for those industrialists who are polluting the rivers and lakes, who destroy the trees and who discharge harmful gases into the atmosphere.

"The preservation of the purity of the earth, air and water," emphasized General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, Comrade L.I. Brezhnev in Dnepropetrovsk, is a state question. There was a time when there was an attempt to put a plant in operation more quickly to produce at any price. Today we must build to spare nature. It is also necessary to renovate obsolete enterprises so they do not harm the environment."

Now all humanity is deeply concerned with the way in which industrially developed countries are solving environmental cleanup. In Capitalist states, the progressive community speaks with great alarm about the coming ecological crisis brought about by chemical abuse of natural resources. In our socialist society, the Party and the government are conducting a sequential course on the systematic and cautious use of the riches of nature for the well-being of man. Recently, the CPSU Central Committee and the USSR Council of Ministers adopted a resolution on measures for prevention of pollution of the Black Sea and Sea of Azov Basins, the Northern Donets and some other important documents.

The state does not spare funds for these vitally important matters. Thus, in our republic, in the current year, we allocated almost 900 million rubles on measures for environmental protection and rational use of natural resources. The primary task of Soviet and Trade Union agencies, industrial executives and the community is to make certain that these vast sums are spent exactly to the ruble according to designation.

Naturally, we are conducting the environmental protection measures in Donetsk on a scientific basis: this town is one of the most beautiful and well organized industrial towns of the world. The town has nearly 150 enterprises, many of which pose potential dangers to the environment. Today the "town of coal and metal" numbers not only a million inhabitants but also a million rose bushes. For every Donetsk inhabitant, there is 160 square meters of verdure.

In the city, there is a very serious attitude toward the "Donbass" project developed by scientists, which project is aimed at the maximal sanitation and reconstruction of the ecological situation in one of the oldest coal-extraction and metallurgy regions of our country. The initiator of the program and the agency which is monitoring its fulfillment is the Council of Donetsk Scientific Center, consisting of authorities in sciences, directors of scientific research institutes and Party and Soviet workers.

Party and Soviet agencies of Chervonograd, a major industrial center of L'vov-Volyn' coal basin, are taking active measures for protection of the environment. Here the inhabitants have created large rosaria, former empty places have been converted into green parks and squares, a ring of fruit gardens encircles the town. Installation of a 1.5 million cubic meters capacity pond -- storage tank became an important link in the complex of measures for environmental protection. It makes it unnecessary to discharge mine waters into the Western Bug.

Examples of a cautious, humane attitude toward nature may be seen again and again. However, there is, regrettably, facts which perturb the community. Recently, many alarming letters are being received by the editor from Nikolayev Oblast, which is nearly last in the republic in

respect to the number of green plantations per person. In spite of this, in Nikolayev itself, the attitude toward green plantations is barbaric. Thus, in the region of old Vodopoya, and the streets of the cosmonauts, long ago there was a loss of oak groves to make room for automobiles. Each new cubicle "eats" 20-25 of perennial trees. The oaks are being destroyed, strange as it seems, with agreement of the town executive committee.

Many complaints are received concerning different instances of streets and blocks adjoining the Vilnitskiy Chemical Plant. The amount of harmful emissions into the atmosphere, according to evidence of the Municipal Sanitation and Epidemiological Station, exceed any reasonable norm. While increasing the capacity of the enterprise, the board of directors gives little attention to the installation of purification installations, and the businessmen get away with it. There is little concern about the purity of the air basin by the board of directors of the Kummarskiy Metallurgy Plant and some enterprises of Krivoy Rog. The Luts'k Melange Combine "Volyn'promstroy" tried to install new capacities for 264 looms, while "neglecting" to prepare for the starting of purification and intake installations. The state commission acted properly by not signing the certificate for acceptance of the new object.

Popular wisdom advises that every man during his lifetime should plant at least one tree. What is even more important, the USSR Constitution, in the interest of present and future generations, is taking necessary measures for the protection and scientifically based, rational use of the earth and its depths, the water resources, vegetable and animal world, for preservation of the purity of the air and water, the ensurance of the reproduction of our natural riches and the improvement of the human environment.

/5-2791/

2791

CSO: 5000

UDC 721.011:628.52

PLANNING OF ENTERPRISE LAYOUTS TO REDUCE AIR POLLUTION

Moscow PROMYSHLENNOYE STROITEL'STVO in Russian No 8, 1979 pp 35-37

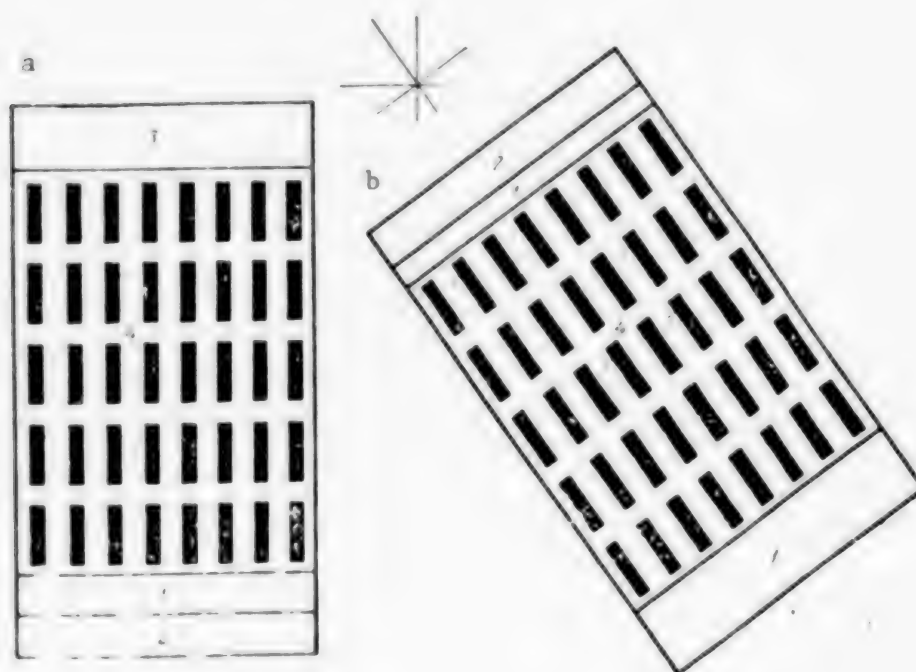
[Article by A. P. Mikhayluts, candidate of medical sciences (Kemerovo Medical Institute): "The Influence of the Layout of Chemical Enterprises on Atmospheric Pollution"]

[Text] In order to prevent the excessive concentration of toxic substances in the work areas of chemical enterprises, an entire series of measures has been worked out, aimed at increasing the distances between buildings [1], increasing the height of emissions [2], reducing structural density [3], locating buildings efficiently with consideration for their dimensions and shapes [4], and zoning territories [5]. At the same time, it should be noted that on-the-spot observations to evaluate the hygienic impact of the most popular building layouts have not been conducted on a broad scale, and that several general planning principles--distances between functional zones, the determination of the best relative placement of production units, the proper lengthwise placement of buildings and the distribution of open-air equipment platforms--have not been adequately substantiated from the hygienic standpoint. Nonetheless, their efficient use, even with existing structural density norms, would aid in reducing the level of atmospheric pollution in the sky above enterprises.

A study was conducted to measure the level of air pollution in the atmospheric layer closest to the ground (1.5-3 meters) with toxic substances (ammonia, nitrous oxides, sulfur dioxide, aerosol sulfates and others) in relation to the layouts of chemical enterprises in Kemerovo, including enterprises for the large-scale production of caprolactam, mineral fertilizers, acids, ammonia, dimethyl formamide and other chemicals. The goals of the research project included the hygienic evaluation and substantiation of recommendations on the relative placement of zones, production units and the spaces between them, the lengthwise orientation of buildings and the distribution of open-air equipment platforms. Air samples were taken to determine the content of harmful substances (4,870 samples) in cold and warm times of the year, with wind velocity of 3.5-6.5 meters per second, in 5-12 locations simultaneously (intrasectional and interunit, intersectional territories, aeration channels, open-air equipment platforms, traffic areas protected

from the wind and between buildings, cross ventilation zones, air intakes of balanced ventilation systems and others). Besides this, at the end of winter, the content of chemical compounds in the snow in these functional zones (420 samples) was measured. The research results were statistically processed on a computer with the aid of correlative and dispersion analyses.

The structural density of these facilities ranged from 32 to 36 percent; distinctions were made between the following zones within enterprises: administrative-economic, production, shipping and warehousing, and auxiliary facilities, some of which are located in the production zone. The area of the production zone ranges from 57 to 69 percent. The height of most production buildings is 12-20 meters. Up to 83 percent of the total ventilation and unorganized technological emissions occur in the zone of aerodynamic shade. In some production units, from 6 to 32 percent of the equipment has been moved to open-air platforms, which are generally located along the length of buildings, at intervals of 3-8 meters.



Distribution of Functional Zones

a) Position of existing buildings in relation to wind rose; b) recommended layout; 1--zone of auxiliary facilities; 2--administrative-economic zone; 3--shipping zone; 4--production zone; ■ --production units; □ --open-air equipment platforms

The overwhelming majority of sources of atmospheric pollution (organized and unorganized technological and ventilation emissions from open-air equipment platforms and others) are concentrated in the production zone. Total

emissions of toxic substances can amount to 140-170 kilograms a day per hectare of territory. At one enterprise, the average weight of concentrations of ammonia, nitrous oxides and sulfur dioxide in the air of the production zone did not exceed the permissible level (30 percent of the MPC* for the air of the work zone), but their total concentration (these are substances with an equivalent effect) was 49 percent of the MPC. Emissions in the production zone affect air purity in other zones. When they come from the leeward side of the production zone or enter the circulation zones between buildings, the content of harmful substances increases from 2.2-fold to 7.7-fold.

From the figure (a) depicting the distribution of various functional zones at an existing enterprise, we can see that the administrative zone and auxiliary facilities, where 72 percent of all personnel unconnected with chemical production work, are downwind of the production zone 37 percent of the time in this layout. The shipping and warehousing zone is influenced by the production zone for 22 percent of the year. The content of ammonia in the snow of the administrative-economic zone is 732 milligrams per square meter, and it is 447 milligrams per square meter in the shipping and warehousing zone. In comparison to the existing layout, the proposed design for the distribution of zones with consideration for the wind rose reduces the probability that administrative and auxiliary facilities will be downwind of the production zone to 23 percent.

Table 1

Indicators	Production			
	caprolactam	sulfuric acid	mineral fertilizers	dimethyl formamide
Gross emissions of ventilation systems, kg/hr	31.65	8.7	3.6	6.7
Total gross emissions of low-level sources, kg/hr	96.1	154.3	49.5	14.8
Volume of air diluting emissions to 0.3 MPC, millions of m ³ /min	1.7	5.1	0.6	0.05
Total concentration of irritants, % MPC	44	56	37	6
Effect of other production units	Production			
	mineral fertilizers		caprolactam	
Probability of effect, %	34	49	17	37
Total concentration of irritants, % MPC	63	71	51	28

* Maximum permissible concentration.

The content of chemical compounds in the air of spaces between zones in areas downwind of buildings in the production zone at distances equivalent to 2-4 times the height of the buildings is 2.6-5 times as high as at distances equivalent to 8 times the height of buildings, and 4.3-7.5 times as high as in cross ventilation zones. Consequently, to considerably reduce the effect of low-level emissions on chemical enterprise territory with no emissions of its own, it would be expedient to arrange for the spaces between zones to be at least as deep as circulation areas protected from the wind and zones between buildings.

The relative position of production units can have a significant effect on the content of toxic substances in the air, particularly when there are production units within the enterprise that emit substances with an equal or equivalent effect--for example, the widespread inorganic irritants. The data in Table 1 show that the total concentration of inorganic irritants in the air of production units increases by 14-22 percent MPC of air in the work zone under the influence of emissions from adjacent production units.

On-the-spot observations showed that when the proper relative placement of production units is being determined, the informational indicator of their effect on air in the plant is the volume of air (cubic meters per minute) required to dilute all emissions from low-level sources of substances with an equivalent effect to 0.3 MPC (see Table 1). During this process, it is necessary to consider all low-level emissions, including those coming from equipment on open-air platforms, cistern intakes, repair operations and so forth, which can account for up to 32-37 percent of the loss of the total gross quantity. It should be noted that calculations based only on ventilation and organized technological emissions can frequently result in defective designs. For example, at one of the enterprises observed, production units with considerable emissions from equipment on open-air platforms are located upwind from most of the enterprise territory and are quite probably having a negative effect on the air in other production units (see Table 1).

Table 2

Placement	Percentage of territory with no buildings		Average concentration of irritants, % MPC	
	cross ventilation zone	circulation between buildings	number of samples	frequency of occurrence
Longitudinal axes of buildings turned toward wind at an angle of 90 degrees	35	65	22	57-71
Longitudinal axes parallel to wind	60	40	25	24-33

When air currents flow around a building, circulation zones protected from the wind and zones between buildings are created with a depth equal to 4-10

times the height of the buildings; they are distinguished by unique aeration features that promote the accumulation of toxic substances [6, 7]. In areas for the production of caprolactam, mineral fertilizers and ammonia, the content of nitrous oxides, sulfur dioxide and ammonia is 2.1-3.3 as great in the air of circulation zones between buildings as outside these zones. The snow on territories which frequently become part of these circulation zones has a content of sulfates, nitrites and ammonia that is 1.6-3.9 times as great as the content outside these zones.

The area of territories making up circulation zones between buildings, with the existing system of structural density norms and distances between buildings, depends on wind direction in relation to longitudinal axes. The measurement of the areas of intersectional and intrasectional spaces between buildings, which are part of the cross ventilation areas of circulation zones between buildings, has shown that when the longitudinal axes of buildings are facing wind direction at an angle of 90 degrees, 65 percent of the building-free territory of an enterprise with an area of around 110 hectares is in the circulation zone between buildings, but when the length of the building is parallel to the wind, the figure is 38 percent (Table 2). The reduction of territory located in circulation zones between buildings increases aeration in industrial areas. For this reason, in the second case, the average (according to the data of measurements taken in six fixed locations) concentration of nitrous oxides, ammonia and sulfur dioxide was 24-33 percent MPC, and in the first case it was 57-74 percent (Table 2). Consequently, the situation of the longitudinal axis of a building parallel to the prevailing wind direction (Figure b) creates a high probability of considerable aeration in plant areas and reduces the level of atmospheric pollution in the production zone.

The studies showed that within a radius of 20-25 meters from open-air equipment platforms, where 4-11 kilograms of toxic substances are lost each hour, there is a high correlative relationship (coefficient of correlation = 0.69) between the content of chemical compounds in the air of the platforms and adjacent territories. Besides this, in several cases involving concentrations of harmful substances that did not exceed the MPC in the air of outside platforms, their content in adjacent spaces, including the air intakes of buildings, was higher than the permissible level (0.3 MPC). The concentration of trichloroethylene, ammonia, nitrous oxides and aerosol sulfates in the air of outside platforms, when these were located in circulation zones, zones protected from the wind and spaces between buildings, was 1.6-4.9 times as high as in cross ventilation zones.

In connection with this, efficient layouts are needed, which will guarantee a high probability of cross ventilation in outside areas (see Figure b) and spaces of at least 20 meters between them and the air intakes of buildings.

Chemical enterprises have a developed network of supply lines. Their surface placement can have a negative effect on the ventilation of territories. For example, the speed with which air rises to a height of 3 meters in spaces between sections and units with no supply lines is 2.3-2.9 meters per second,

but it decreases to 1.2-1.5 meters per second when supply lines are installed. In turn, the length of supply lines at an enterprise, according to published data [5], will depend on organizational principles. For this reason, layouts which reduce supply lines and put them in order should be regarded as efficient for the ventilation of plant areas.

The use of efficient layouts for the distribution of production zones, spaces between zones, the relative placement of production units, the situation of longitudinal building axes and the location of open-air equipment platforms, therefore, will guarantee a reduction in the level of pollution by toxic substances in the air of chemical enterprises.

BIBLIOGRAPHY

1. Russkikh, V. A., Trefilov, V. N. and Blagodatin, V. M., "Materials for the Hygienic Evaluation of Spaces Between Production Buildings at Chemical Enterprises," GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1975, No 1.
2. Arkhipov, A. S., "Urgent Questions of Labor Hygiene in the Chemical Industry," GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1960, No 1.
3. Kapkayev, Z. A. and Karimova, A. V., "The Hygienic Assessment of Labor Conditions in the Production of Butadiene Methylstyrene Synthetic Rubber," in the book: "Gigiyena truda i okhrana zdorov'ya v neftyanoy i neftekhimicheskoy promyshlennosti" [Labor Hygiene and Health Protection in the Petroleum and Petrochemical Industry], vol 2, Ufa, UfNII GTPZ, 1963.
4. Nikitin, V. S. and Maksimkina, N. G., "Measures To Normalize the Condition of Air in Industrial Areas and Adjacent Territories," in the collection: "Nauchnyye raboty institutov okhrany truda VTsSPS" [Scientific Papers of the Labor Protection Institutes of the AUCCTU], 1976, No 99.
5. Ostrovskiy, M. Ye., Melikhova, A. A., Cherepov, I. A. et al, "General'nyye plany khimicheskikh predpriyatiy" [General Plans for Chemical Enterprises], Moscow, Stroyizdat, 1976.
6. Plotnikova, L. V., "The Theoretical Determination of the Concentration of Contaminants for a Detached Building Under the Influence of a Linear Source of Varying Length," in the collection: "Nauchnyye raboty institutov okhrany truda VTsSPS," 1976, No 101.
7. Samsonov, V. T., "Determination of the Level of Circulation Zones Created by Wind Currents Around Production Buildings," in the collection: "Nauchnyye raboty institutov okhrany truda VTsSPS," 1976, No 101.

COPYRIGHT: Stroyizdat, 1979

BOILER HOUSE POLLUTION PROBLEMS IN CHITA

Moscow SOVET (KAYA ROSSIYA in Russian 26 Oct 79 p 3

/Article by M. Nekrasov, chairman of the Chita City Committee of the People's Control (Chita): "A Solution in a Circle"/

/Text/ The drive for cleanness of the air basin is acquiring today, as is known, a more and more acute nature. I will speak about my Chita. But this does not mean that the discussion is of local importance.

A reasonable urban development policy: the reduction of the number of boiler houses, was specified in the city. After the completion of the construction of the GRES and TETs-1 it was possible for a time to stabilize the condition of the air basin within the boundaries of the city. More than 150 boiler houses were closed and ceased to smoke. But the city is growing, so that the previous sources of heat and power have already loaded their capacities. And on the outskirts of the city, but within its boundaries, a large biological factory is being built, which was refused centralized heat supply. And so the decision was made to build a large boiler house. And the construction of housing and sociocultural and general facilities for the families of the workers and employees of the enterprises operating here was planned in the microrayon called Ostrov. And here it is proposed to build two boiler houses. In short, we are returning to what at one time we rejected. And with the appearance of these boiler houses the question of air pollution in the city is again arising urgently.

But is there a way out of this vicious circle? There is. A proposal to build a new central heating plant--TETs-2--was made to the USSR Ministry of Power and Electrification on the initiative of party and soviet organs. The ministry commissioned the Novosibirsk Department of the All-Union State Institute for the Planning of Electrical Equipment for Heat Engineering Structures to select the optimum version of the heat and electric power supply of the city. In 1976 the surveying work was completed. Unfortunately, the designers, on the basis of the amount of expenditures, considered as the best version for the city the plan not of centralized supply, but of separate supply, that is, they proposed to build the same boiler houses. Economic calculations were presented as the decisive argument.

Of course, such a conclusion aroused objections. Indeed, it is possible that the initial outlays on the new construction of a large TETs would be slightly higher than the expenditures on the building of individual boiler houses. But, after all, one must take into account the harm which would be done to the plant and animal world in the case of such a version.

At present the Novosibirsk Department of the institute has again been commissioned to do the surveys and designing and to make a precise economic substantiation. But the work is constantly being postponed and the deadlines are being put off. Not only the red tape disturbs us. For so far there is no firm guarantee that the decision will be made with allowance for all the problems, including nature conservation problems. It is alarming that the power workers, without waiting for the conclusions of the designers, are more and more often expressing the idea of the "expediency" of building boiler houses. True, they add the words: "As a temporary version." But who does not know the expression: everything temporary is the most lasting.

I want to direct attention to the fact that many cities are suffering from such short-sightedness in the approach to protecting the air basin. It seems that in principle the question has been solved and does not cause any doubts: today the development of any city is impossible without strict consideration of an entire set of questions, including the problems of environmental protection. But in practice in a specific city or rayon how inadequate such a fundamental approach still is at times! The sad experience of our Chita is an example of this, both a lesson and a reproach.

7807

CSO: 5000

RECOLTIVATION OF LAND

Moscow EKONOMICHESKAYA GAZETA in Russian No 45, Nov 79 p 15

[Article by M. Grishayev, chief of the State Inspectorate for Land Use and Conservation of the USSR Ministry of Agriculture: "Lands Without Return?"]

[Text] The working of deposits, of course, entails the disturbance of lands. Today more than 2 million hectares of land are taken up by open pits and rock dumps. Of course, in comparison with the total area of the country this is a mere trifle--less than one-tenth of a percent. If it is considered that this much land is disturbed in a whole century, it would seem that there is no reason to worry about the fate of land resources. But this is far from the case.

First, given the present growth rate of mining (its amount doubles every 8-10 years), not 100, but 20-25 years would be necessary to put the mentioned number of hectares out of operation. Second, open-cut mining, which is being used more and more extensively due to its degree of economy, leaves behind it such a complicated technogenous topography (open pits up to 500 m deep, rock dumps 100 m and more high), that recultivation is greatly complicated or becomes altogether impossible.

In short, the careful use and restoration of land resources are assuming an exceptionally great importance both as a measure which makes it possible to reduce to a minimum the adverse effect of mining operations on the natural environment and as a measure which makes it possible to return considerable areas of land to agricultural circulation.

This year exactly 10 years have passed since the day the Principles of Land Legislation of the USSR and the Union Republics were put into force. Decrees which develop individual provisions of the principles, as well as a special decree on recultivation have also been adopted. Nearly all the main questions, both legal and organizational, which are connected with the recultivation of land, have thereby been solved. With what have we arrived at the anniversary of the land legislation, how are its requirements being fulfilled?

In three years of the five-year plan about 300,000 hectares have been recultivated, that is, an average of 100,000 hectares a year. The figures are not bad, if we recall that at the beginning of the preceding five-year plan only several thousand hectares were being recultivated annually. But you would not call them excellent, for at present more land is being disturbed. Judge for yourself: the USSR Ministry of the Construction Materials Industry, for example, recultivated five-eighths as much as it disturbed, the USSR Ministry of Power and Electrification--nearly half as much and the USSR Ministry of Ferrous Metallurgy--two-sevenths as much. Whereas at some major deposits recultivation is complicated, inaction is completely intolerable where in order to carry out recultivation the technology of working the deposit does not require a radical change, where it is possible to get by without special equipment and without great outlays.

For example, the Chirchik Brick Plant Administration No 9 of the Uzbek SSR Ministry of the Construction Materials Industry, the Pechora Open-Pit Administration of the Rosmineralsyr'ye Trust and the Izborskiy Gypsum and Lime Combine of the Pskovstroymaterialy Association of the RSFSR Ministry of the Construction Materials Industry, the Dzhambul Brick Plant and the Alma-Ata Construction Materials Combine of the Kazakh SSR Ministry of the Construction Materials Industry, the L'vov Directorate of Main Petroleum Pipelines of the Ministry of the Petroleum Industry, the Construction Administration of the Novovoronezhskaya AES, the peat enterprises of the RSFSR Ministry of the Fuel Industry, which are located in Kurskaya, Leningrad and Ryazanskaya oblasts, in practice are not carrying out recultivation, although they have good opportunities for this.

The disrespectful attitude of enterprises and organizations toward land legislation is explained not only by the fact that some ministries and departments as before consider recultivation a third-rate matter. An impunity complex often appears at enterprises also due to the poor control on the part of the local soviets of people's deputies.

As was already noted, objects with a complicated technogenous topography present great difficulty for recultivation. It is a matter of the deposits which are being worked mainly by the USSR Ministry of Ferrous Metallurgy, the USSR Ministry of Nonferrous Metallurgy and the USSR Ministry of the Coal Industry. Unfortunately, in most cases the enterprises themselves create this difficulty. Meanwhile, when working sloping and steep deposits the formation of internal dumps is possible (as is being done, in particular, at the Sibirginskiy open pit in the Kuzbass). Moreover, whereas during the mining operations it is often impossible to recultivate the open pits, the dumps lend themselves to recultivation in all instances without exception.

It is not simple, of course, to change the established technology of forming dumps. Here it is impossible to get by without the aid of science. It seems that it is necessary for the sectorial scientific research institutes to approach the problems of forming dumps on a broader front, so that it would be possible to carry out recultivation both during the mining operations and after them.

For the good of the matter it is necessary, in our opinion, also to solve without delay some questions of a legal order. For example, when working deposits by the underground method lands lying outside the made allotment of land are often disturbed. Who is to recultivate them, if not the mining enterprises themselves? The legislation in effect, unfortunately, for the present does not provide for this.

It is also necessary, in our opinion, to extend the rights of the land management service, which carries out state monitoring of the use of land. At present the land managers can halt only agrotechnical and forest reclamation operations. In all other cases their business is to draw up the appropriate certificate and send it to the administrative commission of the local soviet, so that the latter would make the guilty parties answerable. And the land managers are compiling the appropriate documents, the commissions sometimes even punish. But what a trouble: while this entire procedure is going on, the enterprises have time to take out of circulation quite a number of hectares. Would it not be wiser to give the land management service the right to halt the harm at its very start?

7807

CSO: 5000

BELORUSSIAN OFFICIAL COMMENTS ON ENVIRONMENTAL PROTECTION MEASURES

Minsk SOVETSKAYA BELORUSSIYA in Russian 22 Aug 79 p 2

/Interview with Anatoliy Petrovich Shalushkov, head of the Belorussian State Regional Inspectorate for Gas Purification and Dust Catching Installations, by L. Fomina, date and place not given/

/Text/ At present man's influence on the natural environment is growing ever greater. The rapid development of industry and agriculture is frequently accompanied by pollution of the water, air and soil, by exhaustion of forest reserves and by a reduction in the number of birds and animals. The problems of environmental protection have acquired global proportions. A correspondent from SOVETSKAYA BELORUSSIA asked Anatoliy Petrovich Shalushkov, the head of the Belorussian State Regional Inspectorate for Gas Purification and Dust-Catching Installations, to tell us about the ways in which these problems are being solved in our republic.

/Question/ Every year major new industrial facilities are put into operation in our republic. Last year alone 230 new ones appeared. We have become accustomed to measuring the achievements of a given five-year plan by the number of new industrial and agricultural enterprises and large complexes. Output is increasing steadily. At the same time tens of cubic meters of additional smoke and fumes are being discharged into the air, and it is not possible for them to disappear without a trace. What kind of campaign is being waged at enterprises in the attempt to combat air pollution?

/Answer/ Sulfur dioxide, which is formed during the combustion of coal and other fuels, is the most widespread and toxic pollutant. Scientists have created modern equipment which makes it possible to process hundreds of cubic meters of smoke; however, we are still a long way from absolutely harmless technologies in many areas of the economy. Their creation is a matter of time. It has been known for a long time that from the point of view of the future, treatment

installations constitute a necessary but temporary measure rather than a fundamental solution to the problem. Nonetheless, these installations are being built at major industrial enterprises, and they will be used for a long time to come. In connection with the increase in the number and size of industrial complexes in our republic, the Belorussian Regional State Inspectorate for Gas Purification and Dust Catching Installations was created in 1975. The first point of the statute concerning the inspectorate notes: "The purpose of state supervision over the operations of gas purification and dust catching installations is to ensure that enterprises and organizations, regardless of their departmental affiliation, maintain uninterrupted and effective operation of installations for the purification of gases; it is also to ensure that new gas purification and dust-catching equipment which corresponds to the latest achievements of domestic and foreign science and technology is applied in timely fashion to industrial production."

Enterprises in the following areas are the most significant sources of atmospheric pollution: energy and electrification, petroleum refining and the petrochemical industry, the chemical and automobile industries, tractor and agricultural machine building, the machine tool manufacturing and instrument-making industry. The total amount of gas and dust discharged into the atmosphere by energy and electrification enterprises alone amounts to 964 tons. As we see, this figure is quite startling. If we do not take preventive measures, atmospheric pollution will increase with each passing day. It is our job to carry out measures to reduce harmful emissions.

Question When an industrial facility opens, equipment to trap gases and dust goes into operation at the same time. How many of these installations are in operation in our republic?

Answer We have counted 4,000 of these installations in the republic. Last year 147 new installations and 547 repaired ones went into operation. Our inspectors constantly monitor 60 major facilities, especially enterprises in the cities of Minsk, Mogilev, Gomel', Novopolotsk and Vitebsk, where the air pollution factor is high. In Minsk, for example, 10 large and medium-sized enterprises appreciably influence the state of the natural environment. In the capital of Belorussia we have reduced the gas and dust emission to 18 tons per day.

As new facilities are handed over for use, additional treatment installations are also opened. We have great hopes for the latter, but due to the lack of specialists to operate them, they frequently break down. For example, the Volkovysktsementshifer Production Association has electric filters which are operating at half capacity. The Minsk BelavtoMAZ Production Association has two cupolas in the gray iron division which not yet been equipped with a system for the afterburning of carbon monoxide or with installations for wet dust collecting. Nor has the question been resolved as to provide this equipment for two electric arc

furnaces in the association's No 1 steel unit. In Ruba (at the Vitebsk Dolomit Production Association) the electric filters are out of order, and at the Krichev Cement-Slate Combine the filters are only handling partial loads.

Sanctions against the guilty parties have been announced. The situation at the above-mentioned enterprises is now being corrected. But the problem of personnel to operate the equipment remains as before.

[Question] The establishment of problem-oriented laboratories to monitor the state of the air has been stipulated to increase environmental protection and to improve the use of natural resources. Will any of these operate in the Belorussian region?

[Answer] Departments for environmental protection have been organized within the republic's ministries. Until now we have had at our disposal data from air analyses carried out by five departmental laboratories. The need has developed for the formation of this kind of laboratory within our inspectorate as well. It should be noted that in the last two years there has been an increase in the level of atmospheric pollution in the cities of Soligorsk, Bobruysk, Novolukoml', Molodechno, Borisov and Zhodino, places where no pollution had previously been observed. Unfortunately, we do not have enough inspector-specialists to constantly monitor the operation of the existing facilities and installations. We were pleased to learn about the opening of a department for industrial heat and gas supply at the Belorussian Polytechnical Institute, and we are awaiting the specialists to staff it.

The state of the environment is negatively effected not only by gaseous dust impurities from industrial facilities but also by wastes which are discharged. For this reason the broad application of waste-free technologies is an urgent matter: these technologies will help to prevent air and water pollution; they will ensure more rational utilization of energy and raw materials, and they will preserve valuable nonrenewable resources as well as prevent their excessive use. Mankind's attention to nature, especially now, in an age of progress and technology, must be increased. The joint efforts of our inspectorate and the corresponding departments of the republic's enterprises will help to a certain extent to prevent air pollution in our region. Our goal is the same--the protection of the natural wealth of our Homeland.

8543

CSO: 5000

BRIEFS

KAZAKHSTAN EARTHQUAKE--Alma-Ata--On 25 September at 19 hours 06 minutes local time the residents of the Kazakhstan capital felt an underground tremor. Crockery in homes began to rattle and light fixtures began to sway. Specialists from the Alma-Ata Central Seismic Station reported that the epicenter of the earthquake was located to the north of Alma-Ata, near the village of Bakanas, the regional center of Balkhashskiy Rayon. There the tremor registered six on a 12-point scale, and in Alma-Ata it registered four. There were no casualties and no reports of damage. [Text] [Moscow IZVESTIYA in Russian 27 Sep 79 p 6] 8543

BALTIC STUDY--Tallin--Soviet oceanographers on the Ayu Dag, a scientific research ship of the Estonian Academy of Sciences, have begun an environmental study of the Baltic, with the central portion of the sea--the Gotland Depression--as their starting point. The scientists from Moscow and Tallin are carrying out various projects and scientific experiments in an attempt to provide a physical assessment of the state of the marine environment and to determine the indicators of marine variability during the autumn period. The results will be used by scientists in compiling recommendations on the protection of the Baltic Sea environment. [Text] [Moscow VODNYI TRANSPORT in Russian 22 Sep 79 p 4] 8543

NEW POWER LINE--The new LEP-220 [electrical power transmission line] which extends for 300 kilometers from Petropavlovsk to Omsk has closed the electrical ring which brings together the Pavlodarenergo and Tselin-energo systems. The industry and agriculture of Norther Kazakhstan have been ensured a reliable supply of electricity from the Yermakovskaya GRES, the largest in the nation's East. Power from this station has also begun to flow to the Severo-Kazakhstanskaya and Kokchetavskaya oblasts. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 21 Sep 79 p 2] 8543

CLEANER AIR IN AMVROSIYEVKA--The sky above Amvrosiyevka has become noticeably cleaner. This is the result of putting into operation new gas purification and dust-catching installations in the units of the cement combine. In the Tenth Five-Year plan the latest achievements of science and technology designed to increase the effectiveness

environmental protection have found application in this major enterprise of the construction industry. The amount of dust discharged into the atmosphere has now been significantly reduced. The cement workers are also devoting a great deal of attention to the recultivation of land. About 100 hectares of arable land have been returned to the workers of the fields. In the near future about 10 more hectares of land will be turned over for agricultural use. /Text/ /Kiev RABOCHAYA GAZETA in Russian 27 Sep 79 p 47 8543

EARTHQUAKE IN AFGHANISTAN--On 20 August at 9 hours 51 minutes local time an earthquake occurred. The Dushanbe seismic station reported that the epicenter of the earthquake was located 270 kilometers from Dushanbe on Afghanistan territory, south of Fayzabad, at a depth of 230 kilometers. The underground tremor was felt in Khorog, Kulyab and Dushanbe. It registered about force three. . /Text/ /Dushanbe KOMMUNIST TADZHIKISTANA in Russian 21 Aug 79 p 47 8543

KIEV CLEAN AIR CAMPAIGN--The Ukrainian SSR Ministry of Motor Transport held the so-called Operation Smoke for the first time in Kiev. The purpose of the operation was to reduce the amount of smoke and other harmful pollutants in the exhaust fumes from busses. The following organizations conducted particularly active campaigns for clean air: the Kiev Administration for Motorized Passenger Transport, the mobile laboratories for industry and public health which come under this administration and the Ukrorgavtotrans Production Association, as well as a number of motor transport enterprises (for passengers) in the city. Examination of the exhaust fumes showed that their chemical composition had changed appreciably. In particular, the amount of carbon dioxide was significantly reduced. Mechanics from the concerned enterprises have started to do better work in preparing fuel equipment for operation. In the first stage of this campaign those enterprises which have busses making runs into the capital are conducting an Operation Smoke following Kiev's example. With time the campaign will include motor transport workers in Yalta, Odessa, Donetsk, Dnepropetrovsk, Khar'kov, L'vov and other cities. /Text/ /Kiev RABOCHAYA GAZETA in Russian 26 Sep 79 p 47 8543

FEDERAL GOVERNMENT, LAENDER NEAR HAZARDOUS-CHEMICALS LAW

Frankfurt/Main FRANKFURTER ALLGEMEINE in German 2 Nov 79 p 2

[Article by K. B.: "Rapprochement Between FRG Government and Laender on Hazardous-Chemicals Law: FRG Government Statement/Council of Experts Disappointed"]

[Text] Bonn, 1 November--The FRG government finds its draft for a law for protection from dangerous chemicals (environmental chemicals law) principally confirmed by the Bundesrat. This is according to a statement released by the FRG cabinet in response to a Bundesrat statement. The Bundesrat had presented 104 counterproposals to the draft introduced by the government on 28 September. They contain demands for many editorial changes and clarifications of regulations. The Bundesrat also wants a final adaptation to EC guidelines. Proposals for changes regarding the application of the law are extensive as well. In this connection there is, above all, some insistence on an expansion of the regulations concerning the use of poisons. In principle, however, the Laender chamber is accepting the draft as a useful solution to better protect man and the environment from dangerous chemicals.

With regard to this question, the cabinet is noticing that there is a rapprochement between the federal government and Laender governments. On many points the federal government is following the Bundesrat suggestions. It has agreed to study in detail a number of proposals made by the Laender chamber. But the government believes that some of the other proposals cannot be discussed for practical reasons. It points to the fact that those proposals which are in contradiction with EC guidelines cannot be considered.

The Bundesrat made many editorial changes because it feels that it is imperative that laws become more intelligible. This must not only be a promise to the citizens; it must be practiced as well when new regulations are issued. The government also stated, however, that not all formulas can be simplified. It is necessary to have a clearly defined presentation to eliminate as much as possible unresolved questions. Simplifications are accompanied by "a reduction" in legal clarity.

Among the important questions on which the federal government and the Laender do not agree is a cancer list. The Bundesrat is recommending the elimination of regulations for a cancer list. The cancer list is supposed to register cancer cases, fatal damages or genetic changes among humans caused by chemicals and reported by physicians. The Bundesrat considers obligatory reporting by physicians in itself desirable, but it does not belong in the environmental chemicals law. Obligatory reporting should be incorporated into a separate law for reportable diseases and deaths. The government, however, feels that it is important to incorporate a cancer list in the environmental chemicals law. By using better statistical materials, knowledge must be improved as to the causes and conditions leading to cancer. At the same time, however, the federal government is in agreement with the Laender with regard to the view that in addition to chemicals there are other causes for cancer.

The rapprochement between the FRG government and the Bundesrat with regard to assessment of the basic concept for a chemicals law is viewed with disappointment by the Council of Experts on Environmental Protection. Already in the middle of September, the council of experts criticized for the second time the proposed draft, calling it a bad approach. It was said that the test procedures for new dangerous chemicals were not only outdated but also too expensive. This draft must be improved during parliamentary proceedings in such a manner that it will do justice to the requirements for better protection for humans and the environment from dangerous chemicals and, above all, their chronic and subchronic harmful effects. The hopes of the council of experts are now resting with the Bundesrat.

8991

CSO: 5000

NORTH-RHINE-WESTPHALIA TO SPEND MORE ON RUHR ENVIRONMENT

Frankfurt/Main FRANKFURTER ALLGEMEINE in German 2 Nov 79 p 1

[Article by L. B.: "DM 500 Million More for Environmental Protection in Ruhr"]

[Text] Duesseldorf, 1 November--Between 1980 and 1984 the North-Rhine-Westphalia Land government will allocate an additional DM 500 million to promote structural changes and reduce unemployment in the Ruhr. The total cost of the special program will be almost DM 8 billion, DM 1.4 billion of which will come from the FRG government.

Prof Farthmann, Duesseldorf's minister for labor and social affairs, has been criticizing operators of large coal power plants in the Ruhr. Large enterprises, for instance VEBA [United Electricity and Mining Corporation] and STEAG [Hard Coal Corporation] are not willing to install additional desulfurizing equipment in their hard coal power plants in Voerde, Herne, Westhofen and Scholven. The minister reproached the power plant operators because the additional equipment, if installed at all eight power plant blocks at the four sites mentioned, would reduce the discharge of sulfur-dioxide by 80,000 tons annually. He admitted, of course, that the capital outlay for these additional desulfurizers requested by the government would come to a total of DM 400 million and that the resulting operating costs would be DM 80 million annually. On the other hand, however, he said the FRG government was offering federal funds to cover three-fourths of the investment costs. But in spite of it, power companies have to date not been willing to install the appropriate additional equipment. Farthmann said: "Considering the generous government offer, I would have thought that operators would have started by now to do something or other." The minister was complaining that large power companies were concerned only with industrial economics. Such a manner of thinking was not advancing efforts for the improvement of environmental protection in the Ruhr. Consequently, North-Rhine-Westphalia has organized a drive to have the FRG prescribe desulfurizers for power plant blocks of 300 megawatts or more as part of a new ordinance to be enacted for large furnaces.

For the same 5-year period, until 1984, the FRG government is allocating an additional DM 560 million for the support of model installations for cleaning up the air in particularly affected regions. Nevertheless, in this connection the Duesseldorf government confirmed, for instance, that large steel companies on the Ruhr were complaining about the slow progress of this FRG government program. In the opinion of industrial enterprises, the appropriate FRG environmental office in Berlin is requiring for the approval of such investment subsidies for desulfurizers "documents which were much too complicated." Apparently, there is still too much bureaucracy for getting the approval of such investment subsidies and during the process of application and authorization. Therefore, the Duesseldorf government has submitted to the FRG government proposals to expedite and simplify this procedure.

8991

CSO: 5000

BAVARIAN ENVIRONMENT AGENCY CONCERNED OVER RIVER RADIOACTIVITY

Frankfurt/Main FRANKFURTER ALLGEMEINE in German 20 Nov 79 p 10

[Article: "Radioactive Water in Isar: Only a Minor Breakdown or a Symptom of Potential Danger"]

[Text] Munich, 19 November (DPA)--The Bavarian Ministry for the Environment will investigate an incident in the Isar I nuclear power plant in Ohu near Landshut to determine whether it was caused by human error on the part of employees. This statement was made on Monday in Munich by a spokesman for the ministry. During a "routine" procedure of "draining" the water from the cooling tower 200 liters of radioactive water were emptied into the rainwater canal; from there small amounts then found their way into an Isar tributary and subsequently into the Isar.

One of the operators, the Bayernwerk Corporation, indicated that it could not be called a case of a "relevant technical failure of safety features or human error." The incident had been so insignificant that it could not be considered of environmental importance.

According to a spokesman for the power plant, it is not the small amount of radioactivity that causes concern but the fact that the radioactive water escaped in an uncontrolled manner through the rain drainage system. The incident was caused by a leak in the heating pipes of the vaporizing facility. Because of this leak it was necessary to substitute an oil-burning auxiliary boiler. As a consequence, radioactive materials had found their way into the circulation system of the boiler, which is normally free of radioactivity. During the routine process of draining the auxiliary boiler the water which had been contaminated with radioactive materials could run off.

On Monday, under the supervision of officials from the Ministry for the Environment, the water in the rainwater canal was returned to the wastewater treatment facility. Furthermore, steps were taken to repair the leak. "It is possible that in addition to the leak employees misjudged the situation while draining the auxiliary boiler, but this will still have to be investigated," the spokesman for Isar I said.

Bavaria's SPD called the breakdown in the Isar I nuclear power plant a "serious incident." Evidently, according to a statement published on Monday in Munich, it must be assumed that even the slightest irregularity could cause the escape of radioactive materials through water or air beyond the realm of the power plant and threaten outlying areas. Furthermore it was stated that during the construction of nuclear power plants there should be no more attempts at economizing when building the conventional parts of the plant, because, apparently, it is here that radioactive materials could leak out and endanger the environment. The statement also contains critical comments on the official policy of informing the public, because more than 24 hours elapsed before the public was informed.

Already in May, as a result of "human error," between 30 and 50 liters of low-level radioactive water entered the rainwater canal from the nuclear power plant. The Technical Supervision Committee that was charged with the investigation at that time has not yet completed its work.

8991

CSO: 5000

SMOG OVER ATHENS AND SALONICA REPORTED

Athens TA NEA in Greek 28 Sep 79 pp 1, 17

[Text] The cloud of smoke particulates which is suspended in the sky over Athens will continue to cause us distress until Sunday. According to forecasts of the Meteorological Service, the heat and the still air will continue, with the only possibility of it being dispersed being if there is a change in the weather conditions, and specifically being for a "breeze to blow." This is what the EMY [National Meteorological Service] is forecasting for Sunday.

Meanwhile, the Ministry of Social Services considers this "cloud" to be a natural meteorological phenomenon, and maintains that it is no cause for alarm.

But in the measurements which the Pollution Service has made during the last 3 days at five locations in Athens and Piraeus, extremely large increases were found in the values of smoke (60 percent higher), nitrogen oxides (45 percent), and sulfur dioxide (from the 26 micrograms which it usually is at this time of the year to 177 micrograms). However, as these agencies announced, none of these values has as yet gone above the permissible and tolerable limits for people.

Scientific specialists, however, were maintaining that although it is indeed a question of a meteorological phenomenon, nevertheless the part played in this and the "responsibility" for this of our polluting of the atmosphere are great.

Preliminary Inquiry

At the same time, in Salonica the public prosecutor, D. Sideris, gave an order for a preliminary inquiry to begin in order to examine, among other things:

Whether the gases which began to be released 10 days ago are dangerous, and what measures must be taken in similar cases.

In statements he made yesterday, Minister of Social Services Sp. Doxiadis insisted that "there is no reason for alarm on the part of the public, nor for the taking of special measures, since it is a matter of a natural meteorological phenomenon. If necessary, however, the ministry will take whatever measure is needed and will inform the public."

From the measurements which have been made at the five stations which the meteorological service has in operation in Athens and Piraeus, it was found that in comparison with the values of September of last year and of last week, in the 3-day period of Monday-Tuesday-Wednesday, we had:

An increase in the average value of smoke of 60 percent.

An increase in nitrogen oxides of 45 percent.

An increase in the average value of sulfur dioxide from the normal level of 26 micrograms to 177 micrograms per cubic meter of air.

"If the gray 'cloud' which has 'hidden' the capital for so many days now has been created by photochemical pollution, then the problem is serious."

Dionysis Skiotis, professor in the chair of environmental chemistry at the Polytechnic of Melbourne, came to this assessment late yesterday evening. Mr Skiotis--who has specialized in matters concerning pollution and photochemical clouds, and who some time ago made a special study on the very phenomenon which is being observed these days in the sky of Attiki--stressed that if the suspended cloud has been created by pollution, then it contains toxic nitrogenous substances and a number of lachrymatory compounds which are capable of harming people. However, not immediately. Only those people with allergies, the elderly, and children are threatened by possible dermatitises and respiratory disorders.

A specialist in industrial pollution, chemical engineer Georgios Artavanis, considers this phenomenon to be common, but not very "natural," and in answer to our questions, he said to us:

"The phenomenon of a temperature inversion which is observed in the autumn and winter is a sufficiently common phenomenon.

"Specifically, the water vapor encounters the suspended particulates and condenses--on account of the cooling of the atmosphere--and in this are dissolved in turn toxic substances, such as chlorine compounds, carbon monoxide, sulfur dioxide, and nitrogen oxides.

"The above chemical substances come from the waste products of automobiles and factories which have been burning 'oil.'"

"The suspended cloud of particulates--as it is usually called--and which is what has covered Athens, will remain in the atmosphere until it is 'assimilated' and comes down or there is rain and it begins to 'deliquesce.'"

-- What are the consequences to the human organism as well as to the environment?

-- With respect to the human organism, for example, the carbon monoxide unites with the hemoglobin of the blood and causes carboxyhemoglobin, as well as a number of other chemical reactions which I need not mention. The consequences which are seen are significant, and these are:

"Difficulty in breathing and asphyxia, on account of the lack of oxygen. These things result in lassitude and heart troubles, because assimilation, which requires oxygen, is not being carried out."

This "cloud" is regarded as a "meteorological phenomenon which should not cause us alarm" by the pathologist and public-health specialist, V. Bazas. This phenomenon, he told us, "has been very common in England."

Because of the Temperature

Finally, Margelis Georgios, a pathologist and the director of the "White Cross," said to us: "This cloud of particulates has formed because of the sudden rise in temperature and the formation of a mixture of smoke and fog. In order for it to disperse, the temperature must fall or a strong wind must blow. It will cause greater difficulty in breathing for those who suffer from asthma and heart trouble. It will bring about pronounced malaise and diaphoresis for the rest of us, because of the high humidity of the atmosphere in conjunction with a high temperature."

"In any case, there is no reason for the public to be anxious, because even now the circumstances caused by this phenomenon are tolerable."

The KKE-Interior

"There is a complete absence of any policy of effective protection of the environment by the government of the New Democracy Party," it is stressed in an announcement of the KKE-Interior, "and the appearance of this 'smog' both in Athens and in other cities is regarded as a serious omen of a new situation which is developing in our country, especially in the industrial areas of Athens-Salonica and other cities, from the increasing pollution of the atmosphere and the damaging of the environment."

St. Papatthemelis, an independent deputy, is bringing up in the Chamber of Deputies the issue of the presence of poisonous toxic clouds in Salonica, and he is calling on the appropriate ministers to brief the Chamber on the real causes of this phenomenon, the degree of hazardousness these clouds pose, and the measures which have been taken.

In Salonica

Salonica--The release of toxic substances from the burning pesticides and the pollution of the atmosphere of Salonica for a period of 10 days has brought into the limelight one more time the fact of the lack of a suitable legal framework for the protection of the environment, especially as concerns airborne wastes.

The public prosecutor, Dim. Sideris, gave an order for a preliminary inquiry to begin which will examine, among other things, "whether these gases are dangerous and what measures must be taken in similar situations."

Officials who took part in the succession of emergency meetings, in order to deal with the danger arising from the emission of these noxious gases, expressed suspicions of arson involving these pesticides, and the prosecutor's order for a further examination of the case is also directed toward an investigation of the causes of the fire.

Mr Edipidis

According to statements made by Professor Theodoros Edipidis, who holds the chair of hygienics at the University of Salonica, the only practically realizable solution for dealing with airborne wastes within a short space of time is:

To create and set up permanent stations for measuring emitted gases, especially near those industrial complexes which are located in the outskirts of Salonica and which incessantly pollute the atmosphere of the city.

These industrial units ought in any case to install their anti-pollution devices--a type of trap which is placed in the smokestacks--which will serve to filter the wastes. Mr Edipidis pointed out further the special meteorological conditions which prevail in Salonica, with a percentage of calm days of 50 percent, which in conjunction also with the frequent northwesterly and easterly winds bring the airborne wastes over the city, where they settle because of their higher specific gravity.

In addition, it was stated by the Coordinating Committee of Scientific Associations for the Protection of Salonica's Environment that in order to deal with the many-sided problem of pollution, a national land-use program must be worked out on an all-Greece level, which will establish industrial zones and will aim at helping to keep the air of the countryside clean.

12114

CSO: 5000

END

END OF

FICHE

DATE FILMED

16 Jan 1980

D.D.